TONS OF TIPS FOR YOUR MACHINE
see pages: 16-27, 30, 32-33, 46-47...

Issue 134 • 1st June 1991 • 88p

NEW COMPUTER EXPRESS

FIRST NEWS • FIRST REVIEWS • BEST BUYS • YOUR WEEKLY GUIDE

AMIGA

MEGABOARD
Where to get 1Mb of RAM for £64!

AMSTRAD

EXPLOSIVE!
Is your PC going to *blow up* today?

THIS PC IS £54...

IS IT WORTH IT?

GAMES

BARGAINS!!!
UBISOFT'S TOP TITLES SLASHED

COMDEX NEWS

Express visits the world's biggest computer show

WHAT'S NEW FOR THE MAC?

New kit on the block
Live now on page 11

Future PUBLISHING
Your guarantee of value

Frontend

So you thought computing was all about spreadsheets, specifications and shoot-em-ups huh? Well here's the world of the wild, the wonderful, and the plain wacky..

PHONE-Y DISKS CON THE COPS

A confidence trick which took in thousands of people, including the police, has been nipped in the bud.

The sting went ahead following BT's (formerly British Telecom) controversial decision to charge users 44 pence for the use of directory enquiries. A company called Computer Information Services, operating from the address of Mr Alan Roberts in Cardiff, advertised a £99 floppy disk which, the company claimed in its adverts, contained every phone number in the UK.

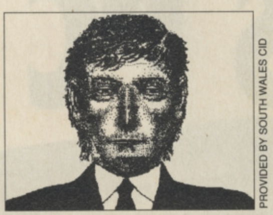
It was not just naive members of the general public who were taken in by the phoney floppy. Cheshire constabulary, several local councils, and many businesses also paid out cash for a service which never materialised.

Detective constable Jeff Norman of the South Wales CID explained to *Express*: "We caught on to the affair in March this year, although accounts had been opened in Robert's name". While no computers were ever actually involved in the scam, DC Norman told us: "From what we can tell, the man obviously knew what he was talking about. People phoned him up to ask about the disk and he gave all the right answers".

According to a spokesman for BT this week: "There are 17 million names and addresses on the database at the moment". In order to accommodate this much data, the disk would have to be formatted to an utterly implausible 122,400K. In real terms, however, not one disk but 340, each formatted to 360K, would have to be used.

The man called Roberts has obviously got wise to police investigations. Since they began six weeks ago, he has not bothered to return to his address to collect the loot which keeps pouring in.

Dud disks were supposed to contain all the phone numbers in Britain


PROVIDED BY SOUTH WALES CID

• This man is suspected of conning thousands of people out of possibly over £100,000 with one floppy disk. How did he do it. Where did he do it, where's the money now,and do you know him?

We asked DC Norman just how much money was involved: "We are looking at thousands rather than hundreds of pounds. We have all ready discovered a number of financial accounts".

BT finally called in the police because it was concerned that it might be losing money from its CD-ROM based Phone Disc and PC-based Phone Base systems. According to the BT spokesman: "As far as I know, all numbers in Telecom directories are copyright BT". This means that any company which wished to provide a service such as the one promised in the Cardiff con, would have to abide by the laws of copyright.

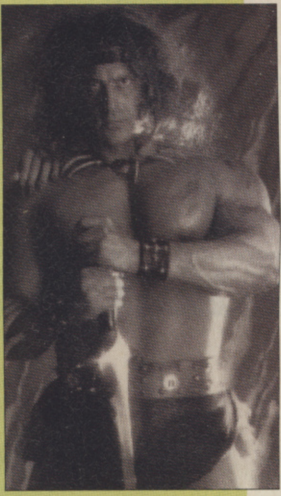
"We have no plans to take legal action against firms who set up rival systems as long as they play by the rules", said the BT spokesman.

If you have any information or have been conned by CIS, you should call the South Wales CID on 0222-222111 and ask for the Canton squad. ■

Totally barbaric behaviour

Barbarian III, is currently under development by Storm – the software house responsible for the highly acclaimed *SWIV*. Also in the planning stages is a film of the classic beat-'em-up. As yet no details are available as to the star of the movie. But with Sly Stallone attempting to become a serious comedy actor, Arnie spending less time with his Ouzi and more with little children, and Dolph Lundgren not doing very much at all, the field is open.

Express readers with suggestions for who should get to play the Barbarian should be addressed to our new columnist, Dr Clare Anthony at *Express Mail*. ■



*• **Barbarian III** is on its way. And so is the film - who do you think should play Barbie?*

SHOOT FROM THE LIP

Yes, after an absence of nearly two years, Shoot From the Lip has been forced to return. In this regular weekly section you will read some of the most contentious, stupid, funny or downright absurd statements made in the computer world.

"I'm sorry I can't give you that information". The receptionist at an Atlanta Hotel next to the Comdex show when asked for the time .

"He obviously knew what he was talking about". Detective constable Jeff Norman talking about the man behind the Cardiff phone con.

"We feel that you've missed a trick here. We were trying to present Atari in a positive light, and your coverage was distinctly downbeat. We are especially disappointed that you printed the SWOT analysis".

Atari UK's marketing manager, Peter Staddon in response to our coverage of his company's latest re-positioning of the ST in the market. ■

GET REAL! • GET REAL! • GET REAL! • GET REAL! •

SMALLS

Sony claims that it has killed the CD with the introduction of its new 2.5-inch Mini Disk or MD. Users will, for the first time, be able to both play and record digitally. But isn't that what it said about the ill-fated digital audio tape (DAT)?

BIG BLUE GOES GREEN

IBM is following Apple Computers in a bid to become environment-friendly.

Apple has already been making eco-conscious noises about removing CFCs from its products, now IBM has gone one step further by instigating a multi-million dollar research initiative.

According to Big Blue, as IBM is affectionately known, "It is a major research programme intended to encourage the use of computer-based technology in the study of environmental problems".

These problems include ground water pollution, ozone depletion and waste disposal. Whether or not IBM is considering bundling screen filters as standard with all its machines has yet to be stated by the American computer giant. ■

Revolutionary time travels

If you're thinking of taking a holiday abroad this year why not head for Boston where the 'People and Computers: Milestones in a Revolution' is about to open.

The expo starts on 29 June and features computers as diverse and fascinating as the 45-year-old ENIAC, the 20-year-old Intell 4004 processor, and the giant Walkthru computer – only one-year-old.

Visitors get to travel down nine 'time tunnels' which culminate in life-sized reconstructions of situations in which computers played a major part. These include a 1930's government office replete with hundreds of clerks toiling away at punch card machines, a 1960's Travellers Insurance Company where IBM's System/360 is used, and the 1970's where Digital Equipment's PDP-8 is used in brain surgery and in the lighting control station of Broadway's *A Chorus Line*.

The site of this feast of computer nostalgia is Boston's Computer Museum, which is claimed to be the only museum in the world dedicated to examining the impact of computers.

Call 0101- 617 426 2800 or fax 0101-617 426 2943. ■

• Two of the world's first computer operators: Jack Gilmour (left) and Joe Thompson at MIT in 1951. The analogue computing engine they are using has less processing power than a Sinclair Spectrum.

Computer Olympiad • Interactive museum • Phoney disks

UK SCHOOLBOYS COMPETE IN COMPUTER OLYMPICS

Three Manchester schoolboys are currently competing in a computer Olympiad. Athens is the site of the international event in which pupils from 20 countries pit their wits against each other in an attempt to solve two algorithms in two days.

Last year's competition took place in the Soviet Union, and the winners walked off with art treasures worth £5,000.

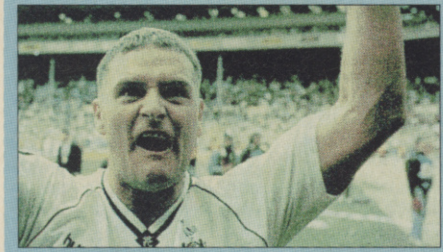
The prize in 1991's Computer Olympics is being kept a tight secret until the victorious team is announced.

UK computer hardware makers ICL is sponsoring the team of three 17-year-olds: David Walker, Anthony Rix and Edward Sheldon (plus substitute Martin Brooks) who all attend the Manchester Grammar School. The lads had to make their way through a qualifying competition which they won outright. ICL is putting this down to the fact that it has been donating equipment, such as a DRS-300 PC, to the school for over two years.

Speaking about the team, school career's master Len Rix said: "They are incredibly competent and I am sure that they will do everyone credit in the international competition". ■

• Computers in schools have gone far beyond the BASIC programming and typing skills phase - it's now got as far as Athens!

Gazza outwits on line



GET REAL! • GET REAL! • GET REAL! • GET REAL! •

GUILTY?

A 19-year-old called Baron Majette, aka Doc Savage, has pleaded guilty to third degree computer fraud in the US. He was arrested after allegedly charging $8,000 worth of calls to Toys 'R' Us. The maximum penalty for this crime is ten years in prison.

Poor Gazza won't be playing too much footy in the foreseeable future, but he can at least practice from home – by playing over the telephone.

Days before the Spurs star was hauled off to hospital with an awesomely nasty injury to the studs, he'd signed an exclusive contract with telephone game outfit, The Phone Program Company. Now the England Ace can dial into a game against his own self. Gazza's Hat-trick Hotline challenges callers to answer fiendishly tough puzzlers on soccer trivia, with cash prizes for brainy football buffs.

TPPC's David Martin is happy. He thinks Gazza will be clocking up calls day and night. Gazza's Hat-trick Hotline is on 0898 345985. Calls cost 34p (cheap rate) or 44p per minute. ■

GET REAL! • GET REAL! • GET REAL! • GET REAL! •

BLOCKS!

The man who invented *Tetris*, possibly the most addictive game in the entire history of the world, is working on another mindbender. Alexey Pajitinov is now busy coding on *Hatris* . The game will probably become one of the USSR's major exports in 1992.

COMPUTER CURES COBBERS

A new system which could save thousands of lives by saving time, is being developed in Australia.

Teleview is able to transmit high resolution images of X-rays and ultrasound scans in compressed format from outlying areas to major hospitals. The compression means that the images can be sent via modem without the danger of 'noise' on the line corrupting the data.

The system is not confined to still images. A frame grabber can take single photographs from any moving film.

Teleview has been developed by Peter Dohrman, a neurosurgeon at the Royal Melbourne Hospital. It is aimed particularly at speeding up diagnosis of illness which occur in the depths of the Australian outback. ■

• Once upon a time only Skippy could have saved the Aussies in the outback from certain death. Now a computer and a modem can. Tkk, tkk, tkk ,eh sport?

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Are you looking for the perfect palmtop PC?
Hewlett Packard's amazing new 95LX could be the one for you – turn to page 55

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Could you benefit from top quality glossy colour print-outs?
GP's Spectra*Star 430 delivers the goods at the right price – page 49

Fed up with typing? Now all you have to do is speak!
Yes, voice control is here – and it comes on a card with MIDI and a sampler too! – page 52

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The 11th annual Comdex Spring attracts record attendance figures

COMDEX 1991: THE

This year's Comdex show took place in Atlanta Georgia between 20 and 23 May. According to the organisers, Interface, it attracted an estimated 900 exhibitors. These included names such as Microsoft, Citizen, WordPerfect, and Samsung, as well as less well known companies like Darius, Experience Systems, and Egghead Software.

Although the attendance figures have not be correlated yet, Interface are claiming a record number of visitors, beating the previous record of 61,000 set over four days at McCormick Place Chicago in 1989.

The chairman of Interface, and founding father of the Comdex show, Sheldon Adelson was ebullient about the 1991 show: "This industry is making a succesful and historic transition. As it has done on previous occasions, the industry is using the Comdex platform, and the critical mass of the audience, to lift itself and the world economy into a new era of productivity".

What he failed to note was the fact that this year's show is also the birthplace of a fast approaching notebook war which could alter the face of personal computing over the next decade.

SAMSUNG
WordPerfect

• The time, the place, the hype attracted some 900 exhibitors from the great to the obscure. New launches abounded, speeches were made, notebook computing took centre stage, and multi-media was still a talking point.

NOTEBOOKS: SPECS ARE UP AS PRICES FALL

As data communication speeds up, the world shrinks, and personal computing follows suite. Comdex saw a glut of portable power with notebook, laptop and handheld computer launches announced.

The world's first notebook computer using Intel's latest 80486 chip was on show. However, the 386 is not dead yet, as a number of previews and launches illustrated. Despite this, a number of manufacturers are all ready having to drop the prices of their existing 286 and 386 machines in anticipation of the greater processing power offfered by the i486.

THE RISING STARS

The Notebook Computer Co: World's First 486 notebook

The seven-month-old Notebook Computer Company previewed what it is claiming to be the lighest, cheapest and first 486SX-based laptop. The 486-T20 attracted flocks of interested observers to the Notebook stand. While they were impressed with the specifiations and price of $4,495, general disappointment was felt at the fact that the machine was not yet up and running!

The 20MHz version comes with a software-based maths coprocessor emulator, 20Mb hard disk, 1Mb of RAM and a VGA screen. There is a more expensive version, the 33MHz DX costing $6,795. This packs a 80387 maths co-processor, 40Mb hard disk, VGA display and 1Mb of RAM.

Both machines measure 8.5 x 11 x 1.4 inches, which is about the size of a ream of A4 paper. They weigh 4.5 pounds, and have MS-DOS 4.1, and *laplink* built into ROM. Ports are provided with an 0.7 inch thick add-on pad called ePad. This has an analogue colour port, 3.5-inch floppy drive, Disney Sound digital audio speaker system, and a CD-ROM compatible SCSI drive.

The official launch date for the computers is late June, with the ePad to follow in July.

Fujitsu and AST: handhelds

At the same time as these machines were previewed, both Fujitsu and AST were showing off their lastest 32-bit personal computers in Japan.

Fujitsu came forward with its FMR50NBX machine. At its heart is the a 16MHz 386SX processor. Three types of drive are bundled with the computer: a 3.5-inch 1.44Mb floppy drive, a logical 1.25 RAM drive, and an integrated circuit card slot.

It has a 16-colour LCD, backlit screen. And the whole thing weighs in at 5.7 pounds. Its price starts at ¥258,000 (approx £1,840).

Fujitsu has not stopped there however, it also announced a 16-bit handheld computer. The Acutote 3000 is a DOS-compatible machine which is said to be the same size as a conventional scientific calculator.

The computer makes use of cards which offer up to 2Mb of memory. The conventional RS232 interface has been replaced by an optical version which Fujitsu claims is more reliable. Price has not yet been announced for this machine.

AST is also introducing a notebook its Premium Executive 386SX120. It runs both DOS 4.1 and Windows 3. The central processor is a 20MHz 386SX chip which supports a 640 x 480 VGA display. It costs approximately £2,325, and AST says that it expects only 4,500 units to be shipped this in 1991.

Altima's attempt

Meanwhile, back at Comdex, Altima was showing off its 6.3 pound, $2,999 386SX notebook. It comes with the, by now standard 1Mb of RAM, expandable to 5Mb. However, its VGA display makes use of both LCD and cold cathode fluorescent technology (CCT) to provide 32 shades of grey. The next step up the line from Altima is a 60Mb hard drive version due later this year.

THE FALLEN HEROES

With notebooks rapidly taking over as the next stage in PC evolution, some desk, and even laptop makers felt it was time for price cuts.

Zenith at the nadir

Zenith announced that it was cutting the prices of its laptop and desktop machines across the board. This is the second price cut made by the company in 60 days.

The unhappy star of the price massacre is the Z-386/33E model 150 desktop. This falls in price by $3,000. The Supersport 396SX Model 40 follows this with a $600 cut. The z-386/25 model 1, the only computer in Zenith's range not to include DOS 4.1 and Windows 3 on the hard disk falls by $1,000.

Texas Instruments tune down

TI is also to 'slash' the prices of its computer, specifically the TravelMate series of 286 and 386 notebooks. The TravelMate 3000 with a 20Mb hard disk, which only went on sale in December 1990, drops from $5,499 to $3,199. While the 286-based TravelMate 2000 has $830 sheared from its price to take it from $3,199 to $2,369.

Samsung the same song

Samsung was following suit with price cuts on its 16MHz Notemaster series of notebooks and its LAN workstation and file server systems.

The 20Mb hard drive version

Canon fires at the home and office

Canon has released three 20MHZ 80386SX-based PCs aimed at the booming home and office marketplace. The machines, announced at Comdex Spring, are bundled with MS-DOS 4.01, Microsoft Works, Windows and a starter kit for the Prodigy on-line service.

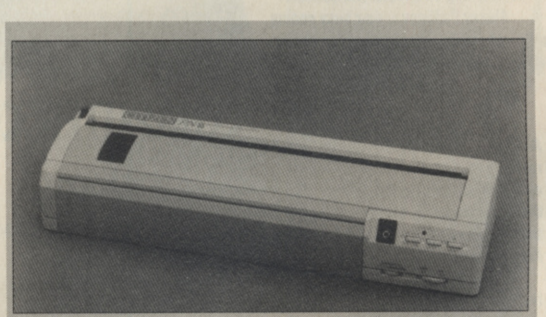
Canon is offering each of the three machines – the C200 M50/HD40, M50/HD80 and M50/HD120 – in four configurations: standard, which includes the computer, keyboard, software and PS/2 mouse; standard with the addition of a VGA monitor; standard with the addition of a Canon bubblejet printer and paper feeder; and maximum, with both a VGA monitor and bubblejet printer.

Pricing on the machines starts at $1,998 for a standard configuration of the C200 M50/HD40, to $3,568 for the Maximum configuration of the high-end C200 M55/HD120.

The C200 M50/HD40 has a 40Mb hard drive with a 28ms access speed, 1Mb of RAM (expandable to 8Mb) and four 16-bit expansion slots. Other features include VGA graphics, twin serial ports and a single parallel port. The C200 M50/HD80 comes with a 17ms 80MB hard drive and 2MB of RAm. Other specifications are as with the M50/HD40.

The C200 M50/HD120 is the flagship of the range and comes with 2Mb of RAM, a 15ms 120MB hard drive and a 2400 bits per second Hayes-compatible modem. The modem occupies one of the machines four available expansion slots.

According to a spokesman for Canon, the M50/HD40 and M50/HD120 will ship in the U.S. from next month onwards. The M50/HD80 ships in August.



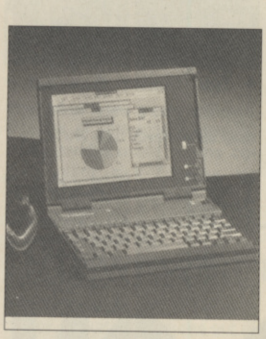
Is this the lightest laser ever?

Personal computers are not the only pieces of computing hardware which can be shrunk to lap size while retaining power. The machine with the biggest 'Wow!' factor at Comdex this year is undoubtedly Citizen's PN48 Notebook 'Near Laser' Printer which weighs a mere 2.5 pounds (including battery), for only $549.

It's ,11.5 x 3.5 x 2 inches, and sits next to your notebook computer. Citizen calls the PN48 the "World's Smallest Laser-Quality Printer." It prints on plain paper, including envelopes and labels, and its software compatible with Citizen GSX, Epson and IBM emulations.

and exhibits the latest multi-media, 486 computing, and more . . .

PC's FUTURE UNFOLDS



• Texas Instruments follows a recent trend and slashes the prices of its TravelMate series. Was this because of the world recession or to ready the company for a new batch of 486-based machines?

falls 30 per cent, from $3,999 to $2,799. Its 40 meg Notemaster slips by 28 per cent from $4,299 to 3,095, and the 60Mb machine drops 24 per cent from $4,499 to $3,399.

It's not all bad news for Samsung however; it has also revealed plans for its first UNIX-based, 18 inch terminal. Based on AMDs 29000 RISC processor, it is called the SGS-19X Windows System. On top of this is the System master 486/33TE, a 33MHz machine based on the 486 EISA architecture. Entry level price is $7,699 rising to $31,000. ■

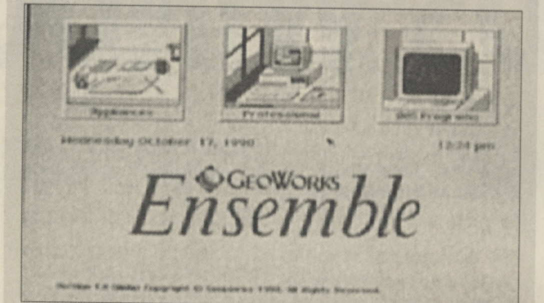
Playing a new Ensemble

There is another Graphic User Interface for the PC aside from the much talked about Windows 3, and it's called Geoworks Ensemble. The upgrade to this software was announced at Comdex. The new version 1.2 of Ensemble builds on the original version, and includes a number of new features, including support for more than 300 printers and a 100,000 word spelling checker. The package is scheduled to ship at the end of June. Registered users will be entitled to upgrade free of charge. Pricing remains unchanged at $199-99.

"Version 1.2 addresses the most immediate upgrade features that our users have requested," said Brian Dougherty, CEO of the company. "We wanted to provide Ensemble 1.2 free to registered users of v1.0 in recognition of their early commitment to the company and the product."

A new licensing deal allows the Philips to bundle Ensemble with all of its PCs. Initially, plans call for Philips to bundle Ensemble 1.2 with its 386, 386SX and new 286 notebook PCs. Geoworks also revealed that its OEM commitments now exceed 600,000 units.

According to Dougherty, European languange editions are ready to ship.



• There's more to life on the PC than Windows as Geoworks shows with its latest version of the Ensemble graphics user interface due here soon.

Going for Gold

Goldstar was also present at Comdex. It exhibited two of its more recent PC productions in the form of the laptop GS-620, and the 386SX-based GS333 desktop machine. The latter runs at a sprightly 33MHz.

While these machines are not expected to be seen in the UK until next year, there us a UK equivalent system to the 333 all ready available here.

This is the GS-335 Tower system which costs £2,888.83. It is available from Silica Shop on 081-309 111.

24-bit image editing for your PC

Another big hit at Comdex was PixoArts new image editing program PixoFoto.

Selling for $800, the package is designed for graphic artists wishing to work quickly with 24-bit images and enables users to edit, colourise and retouch up to 16 images at once in a multiple window environment. PixoFoto uses a TIGA interface running off a Texas Instrument's 340x0 graphics processor board.

For more information call PixoArts on 0101 415 323 6592.

Modern multimedia

"The personalised information revolution is just beginning". So claimed IBM vice-president , Michael Braun, in a special address to assembled Comdex crowds. The value of multimedia lies in personalisation, not only do people want it, they're willing to pay for it", he predicted, "and that represents an enormous opportunity'. IBM's vision of personalised information systems includes computerised televisions, intellligent information selectors and vast sources of data and sensory stimulae all connected and packed on one disc.

Smart TV is one of the projected money spinners, with Braun predicting the advent of an interactive television that can monitor all news feeds and selectively tape any programs that it knows will suit your personal tastes.

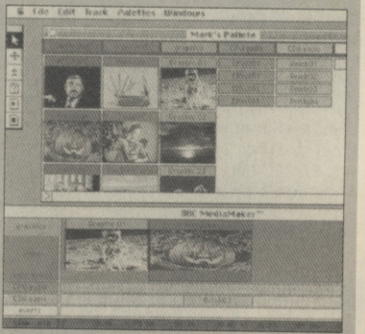
While this is still some way off, Braun gave details of a current project being jointly developed by IBM and Synapse Technologies. The Columbus Project is an 'interactive learning curriculum' that covers the life and times of Christopher Columbus containing more than 150 hours of material.

However, Braun insists that multimedia is still in its infancy and that three fundamental things need to happen for it to flourish. Firstly, developers of multimedia applications must reduce development times, secondly, the price of authoring and end-user systems must drop and finally common standards need to be forged. Enlarging on the challenge further, Braun presented a top ten list of developments which must occur for personal multimedia to emerge.

Excerpts from Columbus's diaries, history books, reference works, film clips and interviews are all cross-referenced

Here's the list in descending order.

- IBM, Microsoft, Apple and Commodore must agree on data standards and applications programming interfaces
- CD-ROM drive prices need to drop to below $200 and capacities need to increase
- PCs with full-motion video abilities should only cost a similar amount more than other PCs like a colour monitor costs more than a mono monitor.



- Applications developers must have access to all the required tools and services from source
- Customers must drive the industry not vice versa
- A national clearing house of copyright material should be set up to allow easy access to 'media' objects
- Easy access to multimedia data wherever it resides
- Full-motion video titles must sell for around $25 and the players for less than $500
- There must be an abundance of top-notch business titles launched as soon as possible
- The information interface should be so personal and usable that millions more people will use multimedia in their everyday lives.

Instant photo quality on a printer

Although it costs $18,000, Mitsubishi's CHC-S445 full-colour printer is a bargain for anyone wanting photographic quality results.

Atlanta punters were amazed to see high-resoltion scans of themselves appearing minutes later as glossy photographs. The machine offers 24-bit colour and 300 dpi resolution, working with a process of 'non-impact dye-sublimation' thermal printing.

Print speed varies according to colour mode, with a speed of 150 seconds per page in 64 tone mode displaying 260,000 colours, and 300 seconds per page in 256 tone mode, capable of displaying 16 million colours.

More information from Mitsubishi New York on 0101 914 997 4999

Opening a new window

Microsoft has announced the launch of *Visual BASIC*, a programming bundle for its Windows operating system.

The package combines a Windows compiler, visual design tools and a powerful BASIC interpreter. Microsoft chief executive officer Bill Gates said of the bundle: "We set out to create the fastest, easiest way to program for Windows. We also wanted this tool to appeal to the broad mainstream of people interested in programming for Windows".

Programs created using *Visual BASIC*, can be compiled into .EXE (executable) files and then freely distributed. And as far as Microsoft is concerned users don't even have to pay royalties on this.

Companies already using the system include Reuters and Credit Lyonnaise.

To use *Visual BASIC* you will require Windows 3, a minimum of a 286 PC, hard disk, mouse, and 1Mb of memory. Price for the bundle is £163.32. However, if you currently own Microsoft BASIC development kit, and Microsoft QuickBASIC - and have registered as such - you can upgrade for £92.82.

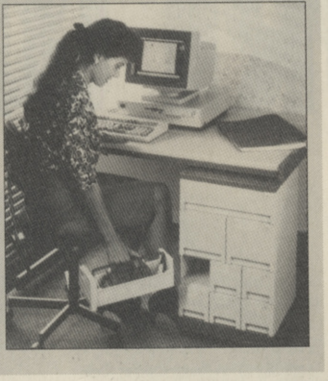
Call 0734 391123. ■

IBM's speedy ceramic chip

IBM is claiming that its latest 121-chip ceramic package has broken all records for the transmissions of electronic signals. The company has proudly announced that the system can transmit at 280 million miles per hour.

This comes at a time when Galium Arsenide (GA) is coming to the fore as the fastest medium for data, which is basically electronic signal transmission. IBM's ceramic package is still years from commerical application, but it does offer serious competition to both GA and silicion-based systems. ■

Boxing clever



Are you a disk junkie? Do you own more floppies than you can handle? Computer furniture manufacturer Accodata reckons it has the solution.

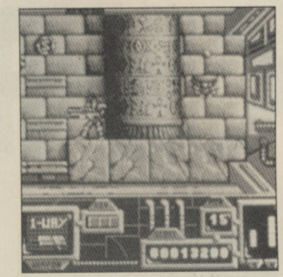
The Disk File comprises 5.25-inch and 3.5-inch disks boxes, which can be built into blocks to whatever size you require. So, instead of hunting for that obscure program, you will find it neatly filed away in its own box. Price is £60 for 300 disks. ■

Time travel with a difference

If time travelling maniacs are your idea of good sport then check out Electronic Arts' *Zone Warrior*.

It's a frantic multi-directional platform game featuring five time zones of human history. You'll be persuaded to chase an unsavoury band of aliens who have stumbled across a time hole and decided to wreak terrible havoc through the ages.

The five spots you'll be visiting include Prehistoric, Egyptian, Mediaeval, Ancient Japanese and, of course, Post Nuclear. Don't forget to pack your big guns, there'll be plenty of baddies to eliminate. It's out on the ST, Amiga and PC at the end of the month for £25.99. ■



• **Zone Warrior:** ***those ancient Egyptians give a warm welcome to their alien friends from the future .***

Microsoft versus Apple: the battle takes a new twist

GRAPHICS ADD-ON SPEEDS WINDOWS

The battle between Microsoft Windows and Apple's graphic interface, System 7, heated up this week with news of a new graphic controller chip.

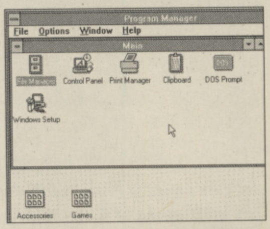
The W5086 from Weitek in the US is claimed by its manufacturers to speed up the running of Windows on 286, 386, and the new 486-based PCs.

The chip works by incorporating the key Windows commands and functions into its hardware. It passes the previously software-based screen-draw calls to the PC's video controller chip. This lightens the workload of the main processor and consequently speeds up operations of both the Windows itself and of applications running under it.

Weitek claims that the chip is compatible with the video graphics (VGA) screen standard, and will also work with existing non-Windows based software. It works in monochrome providing 2,048 x 1,024 pixels resolution. In 16 colour mode, 800 x 600 pixels are available, and 256 colours gives 640 x 480 pixels.

Industry pundits have been predicting such a chip since the initial launch of the Windows system. The added speed which is claimed will be provided by the chip provides a massive filip to Microsoft's aspirations in the prolonged Mac versus PC battle.

The release three weeks ago of Apple's critically acclaimed System 7 operating system, which includes 3D screen effects, enhanced screen refreshes and a whole host of user friendly devices, had many computer journalists, users and observers once again lording Apple's virtues at the expense of Microsoft's.



• ***Pundits have been predicting a Windows accelerator since its inception. Now that one has finally arrived, does it offer the speed needed to beat Apple?***

Microsoft is firmly backing Weitek's chip. Its Windows group manager in the US, Rich Abel said: "The inclusion of graphics acceleration functions enhances the performance of GUI environments such as Windows, thus benefiting the user. Microsoft is pleased that Weitek will offer a user interface controller supporting Windows".

Microsoft's plans to further enhance the appeal of Windows with additions of audio and video processing will also be boosted by the Weitek chip. One of the problems with the system has been the fact that too much has been asked from the central processor and software. Minimum memory requirements for a PC running Windows are 640K in 'real' mode, 2Mb in 'standard', and a whopping 4Mb in 'enhanced'. This latter mode is considered to be the nearest equivalent to the Macs O/S which can be run from a machine with 2Mb of memory. ■

Rats saved by PC program

A computer program has been developed which could help save the lives of laboratory animals in school experiments.

Instead of cutting small animals in half, students can simulate vivisection on their computers. The PC program was developed by Dr David Dewhurst at Leeds Polytechnic, who had been given a £10,000 grant from the National Anti-Vivisection Society.

Dewhurst commented: "This won't stop vivisection overnight, but it is a significant step forward. Students can see on screen the simulated effects of tests on tissues when drugs are added. Traditionally, these are types of tissue which have been removed from animals killed humanely."

He pointed out that the software is also cost effective. One laboratory rat costs £10, but the program, which costs £100, can be used again and again. ■

• ***Scientists in Leeds are even now developing ways to save animals from experiments using computers.***

At a perfect price?

WordPerfect corp is offering a free site licence to users of version 5.1 of its word processor software.

The offer begins on 1 June and lasts for 30 days after the, as yet unconfirmed, release date of WordPerfect for Windows.

A spokeswoman for WordPerfect told *Express:* "We don't have a date for the Windows launch as yet. All I can tell you is that it will occur in the third quarter of this year. That is sometime between June and September".

A free site licence means that users of WordPerfect 5.1 can run both DOS and Windows-based systems on their PCs and still receive system support. It does not mean that they get a free copy of WordPerfect for Windows.

A dated proof of purchase is required in order qualify for the offer. For more information call 0932 850850. ■

Alignment fault detected on co-processor socket

AMSTRAD PC 3386: CHIP COULD BLOW

Owners of Amstrad's new PC 3386 model using maths co-processors risk blowing up components because of an installation fault on the co-processor sockets.

Amstrad last week confirmed that a number of 3386 models have been made with the co-processor socket 90 degrees out of line. Users adding a co-processor, who are unaware of the problem, risk blowing the chip.

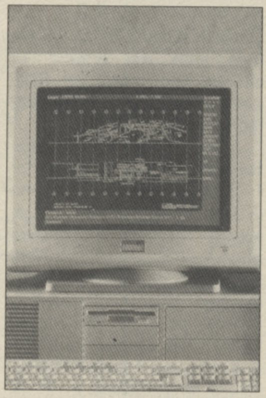
Stephen O'Brien, a member of the technical support team at leading Amstrad distributor Micro Peripherals, said: "I know there's a problem with the daughter board on to which the micro processor fits. When the customer installs the co-processor in the normal way the chip bows. I don't know whether this was a batching problem or whether it's universal. I've had three calls from customers with problems and there have been five calls into the department."

Amstrad's technical support department confirmed that modification was a potential danger: "If you're going to fit a maths co-processor you need to check the position of the socket. In some cases it is 90 degrees out of alignment. That means if you plug a chip in then you'll blow it to Kingdom Come. You'll have to get an engineer to check it out.

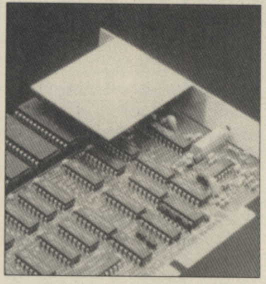
"The problem occurs on a number of machines where the manufacturer put the socket in round the wrong way. If you plug the co-processor into one of these then it will blow."

An Amstrad spokesman said the fault should not cause alarm: "There's no need to get an engineer out, you just have to look at the manual. The layout of the socket is misleading because it can go in two ways. If you put it in the right way then it's OK. If you put it in the wrong way then then it's not.

"It is misleading and we are altering it now. This only occurs on a small initial batch, but if anyone has a problem we will handle it without question." ■



•3386: owners may need help with their co-processors from Amstrad.



• Microway's FlickerFixer, a graphics enhancer board designed to eliminate flicker problems on Amiga 2000s using high resolution and VGA monitors, has been drastically cut in price from £325 to £125.

Flickerfixer removes the scan lines which appear when a monitor is used in interlace mode, and, as its name suggests it removes the flicker which occurs in interlaced mode. The firm claims the change is due to "a high volume of sales". Call 081-541 5466. ■

Alien animation

Team17 programming members have been spending their time "making some very strange noises into microphones'.

The reason why is that they want to get the right 'slurpy-squishy' sounds for the soon-to-be-released *Alien Breed* . Not only are weird sounds coming from the crew, so are claims that the game, due for release in three to four weeks time, is the 'first true 1Mb game for the Amiga'. There are one and two player options, a tennis sub-game, six weapons, acid pools, speech, and of course the sound effects.

When finally released the game will cost £9.95. For more information contact 0924 368151.

ALIEN
BREED

• This game, **Alien Breed** *(inset) claims to have just the right 'slurpy-squishy' effects around. Well the game doesn't, but the programmers do, they also have a great deal more to say about it....*

Portable printing from Brother

Brother is launching its first ink-jet printers; the HJ-770, and portable HJ-100.

The HJ-770 is a 136 column machine which runs at 150 character per second (cps) and can take sheets of A3 paper in landscape mode.

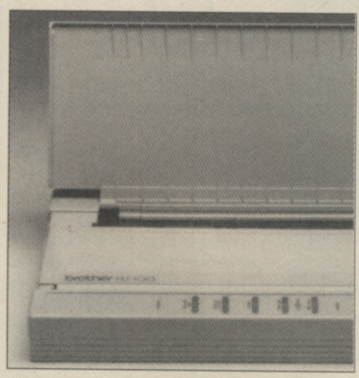
There are four font styles bundled with it: Roman, San Seriff, Broughan (Brother's own font, which is similar to Courier), and Letter Gothic. Downloaded fonts can also be stored in an optional 128K battery-backed RAM card. Three emulations are available as standard, ProPrinter, XL-24e, and Epson LQ1050. Brother's own DeskJet printer is also supported.

The portable HJ-100 is the same size as a piece of A4 paper, and is powered by rechargeable Nicad batteries. Brother claims that the batteries will last for 40 pages of printed text before they need recharging.

There is also an optional A/C adaptor available. There are no bundled fonts with this printer, or at least none that Brother is aware of. According to a spokesman for the company: "These printers are so new, that we haven't even seen them".

The HJ-770 is priced at £880 and the portable HJ-100 costs £362.

For more information call Brother on 061-330 6531. ■



• The Brother HJ-100. Portable ink-jet printing could be yours, but it's so new not even Brother knows where all the fonts come from!

Boot out that virus

A virus killer has been launched which, according to its producer, can protect the most vulnerable part of your PC, the boot sector.

PC-cillin from Affiliate Software attaches to the parallel port, and is transparent to the system. It lurks in the boot sector to wait for any rogue programs, and duly warns of any disks which are infected, before a virus can be installed.

"In tests, it's been totally successful against all-known viruses," claimed managing director Chris Arden, "We expect a similar success rate for detecting future viral threats."

PC-cillin costs £149. For more information call 0273 602622. ■

Butler serves up ST program

ST owners are to be offered a 'butler' program packed with useful utilities.

Kuma's *Mortimer* can be accessed from within all manner of programs such as word processors, databases and programming languages. It features a text editor, printer spooler, virus detector and keyboard macro maker. There are also a bevvy of different little tricks such as a magnifier, quick mouse, clock, calculator and ASCII list.

***Mortimer*, originally written by German company Omikron, costs £32.90. For more information call 0734 844335.** ■

French do an inside job

A French travel agency has run into trouble after using convicts as cut-priced labour in the operation of its computers.

Wagon Lits had subcontracted computerised booking accounts to a penitentiary in Bapaume, Northern France. But the plan to use cheap labour backfired as company chiefs realised that the files contained the exact times when thousands of families would be taking their holidays.

Fearing that convicts would contact pals on the outside, and arrange burglaries, Wagon Lits hastily cancelled the contract and brought in more reliable employees. ■

NIBBLES

Olivetti price cuts

Olivetti is to cut the prices of its range of PCS range of PCs by up to 19.6 per cent.

A 20Mb PCS286 now costs £997 as opposed to £1,232. The 40Mb version now costs £1,115, previously the price was £1,350. However, when the recent rises in the VAT rate are taken into consideration, this second price cut disappears. As do the cuts on the PCCS386SX (20Mb is a 10.72 per cent, the 40Mb is 10 per cent), the PCS86 (20Mb version 'falls' by 5.8 per cent.

Call Olivetti on 0908 690790.

Speedy fox Pop

Fox Software is claiming that its new database management system FoxPro 2 is 'revolutionary'. It justifies this by claiming that the system provides data access speeds which are: 'hundreds of times faster than ever before'.

Apparently FoxPro 2 is capable of manipulating gigabytes of data. It runs on PCs from the AT up to the latest 486 computers. A single user licence for the system costs £699.

Sam old story

Team Sam, the company which was once incarnated as Miles Gordon Technology (MGT) until it went bust, has announced three new products for the Sam Coupé. They are all music oriented: the MIDI Sequencer costs £46.94; Sound Sampler includes a microphone, software, and manual, for £58; and Music Master drives the Coupé's own synthesiser via the QWERTY keyboard, price not released.

Call 0792 700 300.

Scandy Harry

Logitech is to bring out Scanman model 32 for the PC. This monochrome hand scanner can come as a stand alone piece of kit, or bundled with Cathword, its optical character recognition (OCR) software. Not only does the Scanman run under DOS, it is also configurable for Windows.

For now it is only available in the US at £299 for the scanner, £359 for the scanner and OCR software.

Colourful chips

The world's first computer chip capable of controlling colour liquid crystal displays (LCDs) has been announced in Japan. The rather unexcitingly named Micro-PD16426N chip, is able to manipulate up to 4,096 colours on screen simultaneously.

Computing development could switch from West to East

UK PAYS TO JOIN JAPANESE IN AI

Japan is looking to the UK for help with its project to develop the next, or fifth, generation in computing technology.

Japan's Institute for the New Generation of Computer Technology (ICOT) plans to develop mainframe, and consequently personal, computers which rely on Artificial Intelligence (AI), parallel processing and inference technology (known popularly as 'fuzzy' logic). It has approached Bristol University and Imperial College, London for assistance.

EUROPEAN CONSTRAINT

However, the notion of two major UK universities joining forces with the Japanese, at a time when Europe is attempting to forge itself into a major world trading power, is likely to draw constrained, or even negative reaction from across the channel. US reaction is also likely to be muted. If the Japanese are successful in their developments, the entire focus of computing development could switch from West to East.

Both Bristol University and Imperial College seem to be highly sensitive to these aspects judging from their responses.

In a prepared statement, Prof David H D Warren of Bristol's Computer Science department said: "ICOT has proposed installing two of its PSI sequential inference machines at the University of Bristol. These will be attached by high speed link to the Multi-PSI parallel inference machine at ICOT in Tokyo.

"Discussions are proceeding with the Department of Trade and Industry (DTI) to support the UK side of the collaboration. Professor Keith Clarke's group at Imperial College London may also be involved, and share the link to ICOT's PSI".

As we went to press, Professor Keith Clarke had not yet replied to our phone calls.

AI is an area in which Bristol University has an excellent track record – for example with the snooker playing robot featured on the BBC's QED program. The Japanese have therefore proposed an agreement for Bristol University to develop an AI-based programming language on its behalf.

The ICOT project was instigated in the summer of 1982 by the Ministry of International Trade and Industry (MITI) in Tokyo, and is now in its penultimate year.

HARD CASH IS WAY IN

Although collaboration from outside Japan is welcomed by ICOT, the way in has to be bought with hard cash. Consequently, Bristol University is now having to seek funding from the DTI. Jim Davison at the DTI's Technology and Research department told us: "I try to keep up with ICOT, but I don't know a great deal about Imperial or Bristol. If it is question of a university contacting the DTI for funding, I cannot comment".

SIXTH GENERATION

The implications for UK computing, which saw its last remaining mainframe manufacturer, ICL, fall into Japanese control earlier this year, extend beyond the end of the ICOT project. As *Express* reported in its 16 February issue, a £770 million, sixth generation project is due to begin in Japan in 1992.

The sixth generation project is to concentrate on neural networks - a form of computing which derives directly from the kind of AI work which is to be carried out in Bristol. With computers already installed in Bristol, the UK will be in an ideal position to take a leading role in this development. ■

Claris helps Macs to the future

Claris is launching three System 7 compatible software bundles for the Mac.

The *Resolve* spreadsheet is said by the company to be 'the flagship of the Claris System 7 family'. It enables users to produce full colour graphic representations of their number juggling. These include 3D, wireframe, and contour charts and scripting, or macro, facilities to automate repetitive tasks.

MacWrite Pro, is the next launch. This is an upgrade of Claris' word processing system familiar to Mac users. Upgrades include table creation and manipulation, paragraph and character style sheets, multiple headers and footers, and a 81 colours. Graphic formats such as TIFF, PICT2, and EPSF are supported.

MacProject 11, a project management tool, is the last of the launches. It provides users with the ability to produce schedules, project graphs, and tables.

Material from all of these programs can be ported from one to another without loss of formatting.

Both systems make use of System 7's functions such as 'publish and subscribe', and Bubble Help.

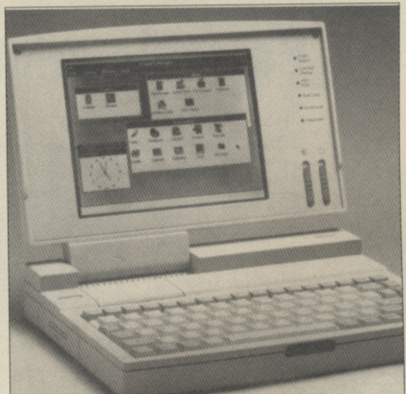
Resolve costs £323, *MacWrite Pro* is £205, and *MacProject II* is £464. ■

Noteable system

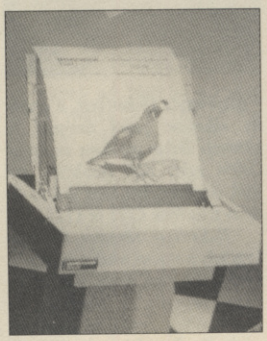
NCR has entered the portable PC market with a 5.6lb, 386SX notebook PC.

The NCR 3120 is 1.7 inches thick, 8.3 inches wide and 11.6 inches wide, about the size of a ream of A4 paper. It includes a 30 or 60Mb hard drive as standard, complemented by a 3.5-inch, 1.44Mb floppy drive.

The screen is a monochrome, back-lit, VGA liquid crystal display. Expansion is via serial, parallel, mouse and video ports, as well as an external bus connector. 1Mb of RAM comes as standard and can be expanded to 5Mb. An optional internal fax/modem is also on the cards. This allows faxes to be sent via V27 protocol at 4,800 baud and V29 at 9,600 baud. The entry level machine with 1Mb RAM, 30Mb hard drive, single floppy, and VGA monitor costs £3,724.75. ■



• NCR'S paperweight portable PC, available with optional internal fax/modem. Call NCR on 071 725 8248



Space age printing

Mannesman Tally's latest portable printer, the MT735, has been short-listed to fly aboard the space shuttle Columbia. The printer has already been tested in a weightless environment.

The MT735 is a six pages per minute machine, it measures 29cm x 22cm x 6cm, and weighs 3.8Kg. Power is from rechargeable batteries. It also has a cut-sheet feeder which can take 80 sheets of A4. Print resolution is 300 x 300 dots per inch. It cost £1,760.15. Call 0734 788711. ■

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WHAT'S NEW

The quick reference guide to all the newest of the new in computing this week.

CD goings on

PRODUCT:	**CD-ROM Drive**
NAME:	**Toshiba XM-3301B**

• Driving forces behind the Mac and PC, or merely CD entries into the world of data storage?

The Mac and the PC meet and agree at long last. This drive, available in the UK via Highland Computers, comes from Toshiba. The company claims that the drive has an average access time of 325 milli-seconds (ms). Users are not limited to one size of Compact Disc either, both 12cm and 8cm versions are catered for. They also support both audio and data transmission.

The drives come in internal, external, and external four-drive tower form and are compatible with PC-AT, PS/2, Mac, and Toshiba laptops.

Price:	This depends on which configuration you require. Toshiba were 'unable' to give us an entry level or top-end price. However, we will have this information for you in next week's issue.
Availability:	Now
Target users:	According to Toshiba: "Sophisticated Mac and PC users who need high speed access to data on tap".
Contact:	0444 235000
Perceived competition:	Hitachi

Fast worker

• It looks expensive now, but this machine's descendents could be affordable by the end of next year. So what does this powerhouse offer?

PRODUCT:	RISC portable workstation
NAME:	Sony NWS-3260

Sony has just announced the launch of this 8Kg portable RISC workstation. The company claims: "Quite simply there has never been such high-resolution and power in a portable computer before." With the specifications of this laptop the claim is difficult to doubt.

It delivers 17 million instructions per second (mips), with 1.8 million floating point operations per second (MFLOPS). UNIX 4.3, X-Windows 11 and Sony's NewsDesk user interface are incorporated into the system in their complete formats.

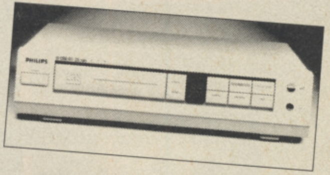
The central processing unit (CPU) is MIPS Computer System's R3000. This is complemented by the R3010 floating point accelerator.

16Mb of main memory come as standard, along with a 406Mb internal hard disk, and a 1.44Mb floppy drive. The monitor is an 11 inch monochrome liquid crystal display (LCD). Like Sony's NWS-3865 (see the Nibbles column on page 8) the NW-3260 comes with a built-in Ethernet interface to accompany its parallel, serial and SCSI ports.

PRICE:	£10,563.25
AVAILABILITY:	Now
TARGET USERS:	Software engineers, and anyone who can afford this high level of computing.
CONTACT:	Sony Microsystems on 0784 467228
PERCEIVED COMPETITION:	None

Affordable CD-ROM

PRODUCT:	**CD-ROM Drive**
NAME:	**Philips CDD461**



• The cheapest CD-ROM in town is Philips' new CDD461

At last an affordable CD-ROM drive for the PC. The CDD461 from Philips, which is collaborating with Sony on CD-I development at the moment, is compatible with PC/XTs, and PS/2 computers. One of the major factors about this drive is that it features audio-out with front panel controls - it even has the tray loading system familiar to owners of stereo CD players.

A range of applications are already available for the drives, including Philips' European Business Guide. It can be controlled as an MS-DOS extension which makes installation an easy process.

Price:	£468.82
Availability:	Now
Target users:	In the words of a Philips spokesperson who talked to Express this week: "Anyone who wants a CD-ROM player at a price they can afford".
Contact:	Philips on 0306 75777
Perceived competition:	Hitachi and Toshiba (although neither can provide a drive at this price)

Rob-Manager

PRODUCT:	**Stats and monitoring software**
NAME:	**Informer**

Informer is designed to be pro-active in tracking possible trouble spots on UNIX-based systems. The software comes with pre-defined areas at which to look, however these can be further configured by the user.

The software monitors a system and produces graphical illustrations of the ways in which single users, or groups of users, are making use of it. This allows managers to produce invoices and reports for each department.

A 'cyber' aspect of the software is a 'module' called Robot which occasionally logs on to the system as a pseudo-user. It then carries out a number of the tasks which a 'typical' user would do and is then able to measure screen response time, and relay the data back to the manager.

Price:	£3,519.12
Availability:	Now
Target users:	UNIX system managers
Contact:	Pittman Professional Systems 0732 63881
Perceived competition:	None

Lease, lease me

PRODUCT:	**Lease line modem**
NAME:	**Nokia N1920**

This one is strictly for the business user, but we thought that it would be of passing interest to the comms aficionados amongst you.

The Nokia can handle a massive data transmission rate of 19,200 bits per second (bps), as well as a wide range of lower rates including 16,800. It is designed as a four-wire, point to point, lease line piece of hardware. It supports V33, V29 and V27 bis standards.

A lease line modem is one designed to be used for private communications rather than over the public telephone lines - in-house data communications for businesses for example.

• Do you need secure in-house communications? Nokia's lease-line modem has all the speed and security you're after

Price:	This depends on your specific needs and the size of the system you are setting up. So give Nokia a call
Availability:	Now
Target users:	Businesses, and users who require rapid data communication over private lines.
Contact:	Nokia on 081-569 7700
Perceived competition:	Nokia were not prepared to say.

Hard Drives!!!

Our drives feature the same ICD case-external SCSI ID changer, external SCSI port, and DMA through port. But we now feature Plus Impulse Drives (A Quantum company) with a 2 year warranty, and a 64K cache on drive. All our drives have clocks!

ICD w/Plus 105Meg 11ms	£529
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ICD w/Plus 40Meg 12ms	£425
Bare Plus Impulse 40Meg 12ms	£255
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Bare Plus Impulse 105Meg 11ms	£340

SYQUEST SQ-555 based drive:

The famous ZCS-44 removable	£639
extra cartridge	£86
a three-pack	£231
bare SQ-555 SCSI (w/cart)	£431

Combo drives- add another bare.

The Megafile 44 is a SYQUEST.
Ours comes with ICD host / software.

Drives come set for US, UK or other power.
They come with PD software.

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Option 'C'- 33mhz 68030, 68882, 4 SIMMs	£579
Option 'D' -4 1Mb SIMMs	£189

Shipped with a 68030 version of TOS.

MegaTalk

A fast communications board for Mega STs. Adds two serial ports (up to 900,000 baud!!!) and a true SCSI port for Spectres (v. 3 or higher) this means...

AppleTalk!
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In Atari mode you get 3 serials (BIOS drivers included)

Spectre v. 3.1 £204

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502	Fonts & Ram Manager
517	Kickstart 2
556	C Manual 1, 2 & 3
592	Ultimate Virus Killer - Best Yet
510	T.Bag 40A & 40B
522	Games Music Creator
595	C-Light

DEMOS

832	Iraq Demo
891	Wizz Cat
896	Debbie Jordan Slideshow
801	Razor 1911 - Best Demo
845	Kathy Lloyd Slideshow
874	System Violation
807	Blood Sport

GAMES

700	Treasure Island
725	Blizzard
777	Paranoid
742	Learn Play 1 & 2 for children
799	Starfleet
726	Castle of Doom
766	Computer Conflict
710	Lady Bug
746	Pseudo Cop
791	The Evil Dead
785	Star Trek - The Next Generation
729	Star Trek - The Final Frontier
747	Boing - Quit, Good
794	Colossal Adventure - World Adv.
715	Pipeline
761	Battleforce
730	Frantic Freddie - Good game
751	Arcadia
777	Holy Grail Adventure
732	Golden Fleece
720	Grave Wars
782	Dynamite Dick
737	Return to Earth
762	Games Galore Vol. 1 to 7 - Various good games

MUSIC

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987	Total Remix
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975	Groove Is In The Heart
988	Dynamite Beats 4
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✉ Time Warp

It seems that a large number of *Express* readers are stuck in a temporal loop! While I agree that's it's not nice to see your machine specific column dropped/ changed/ cut down, it is a fact of life that we go forward developing new technology.

How much more can be said about the BBC B, Spectrum or whatever 8-bit machine? After all they ruled the roost for many years. 16 and 32-bit machines are now the thing.

Perhaps there's a new market for a magazine like *Classic Cars* for old computer owners?

M Jones Skelmerdale Lancs

PRACTICAL CLASSICS? Seems to me the main problem with owning some of the older machines is knowing when to call it a day. But with all the emulators kicking around these days on the 16-bits it's not as if you can't use all that old software any longer is it? I don't know about the idea of a specialist magazine though. Anything upto 80 per cent and beyond of any mag's revenue comes from advertising - so I doubt whether there's enough out there to support one.

☎ Cheaper access

Why don't you rig up a deal with a free bulletin board instead of expecting us to correspond via on-line services that cost us money to subscribe in the first place.

Paul Banks, Chelmsford Essex

A GOOD point and one we looked into immediately. We've now got an area on Aspects where you can leave mail. So, get in touch on 061 792 0260

✉ Tack tips

One of the columnists in the June issue of Atari ST User appears to be clinically insane (well what did you expect - Ed) He advises in the beginners column for new users of STs, that it is okay to leave a floppy disk on top of a TV for a week, under a telephone, rub it with a magnet, subject it to heat etc and it will be OK. He claims that if the data is lost it's because the disk is at fault to begin with.
If this is the kind of advice that a popular mag gives to its new readers then they would be better off not giving it at all

Clive Parker Pill Bristol

SOUND TECHIE advice is an essential part of any magazine's service to its readers. That's why we were glad to replace Uncle Tech Tips with Big Keith.

✉ Copy cats

Re: the piracy debate.
It is next to impossible to produce an uncopyable system. For example, cartridges were supposed to have stopped pirates but, as some of your readers may be aware, there is an illegal Nintendo cart with 60 games on it floating around on the black market.

CD-ROM games or software might be unassailable at the moment but some bright spark will find a way to beat the system. I used to hack games - why?- because they were there. It's no good fining game hackers or threatening jail that just makes it more exciting. What's needed is re-education. The industry could find a lot of excellent programmers just sitting at home and it could be beneficial for the industry to talk to pirates. This would give the industry the chance to turn the pirates on each other.

Ian Fereday Penn Wolverhampton

I THINK we should begin to make a distinction between pirates and hackers. I can see people hacking games for the sake of the coding challenge – this seems to be somewhat harmless and entirely different from people who crack, swap and sell the software on. But I guess in practical terms it's a meaningless distinction. Who's to prove the guy who had £16,500 worth of copied games the other week didn't crack them all himself?

☎ On-line mail

Own a modem? Then squirt us a letter. *Express* has its own area on Aspects bulletin board (061 792 0260) where you can leave mail and upload/ download files.
We also have our own conference on CIX. Why not give this on-line service a ring on 081-390 1244 and talk to us direct!
You can also get in touch on Prestel and Micronet @011112623, or on Telecom Gold @84:txt152

ULTRA-CASH MAGNETIC LOOT ATTRACTION UTILITIES - PARTS 5 &6

• Yes, a life of luxury in Rio could be yours. All you need is a suit and tie, a few qualifications and access to a computer

5 Here's a way guaranteed to make cash fom your micro. Hang around any College of Further Education at the end of July when they're enrolling the night classes.

Ten minutes before enrollment is due to stop, stroll over to the girl on the computer who's taking the details and say: "The principal wants to see you in his office immediately. I'll look after this." When she disappears, use the two floppies concealed in your undergarments to divest the PC of its program and data files.

Once back at home, you can load the program and data, throw away all the normal course lists and concentrate on the sort of courses that only an idiot would sign up for. By extracting the names and addresses from all of the Underwater Hang-Gliding, Astronomy for beginners, travel photography and Basket Weaving course members, you'll have a list of names that you can throw into a random sort routine. Next, using the office PC and laser printer you can knock up some professional looking computerdating stationery and mailshot them all. Let's face it, if ordinary people will pay hundreds of pounds year in year out for computer dating, these sorts are the key to your personal goldmine.

Major Rory Jarvis, Milton Keynes.

OF COURSE this astonishing loot attraction utility shouldn't be loaded by anyone posessing the slightest modicum of respect for his fellow human beings. It could seriously damage your health.

6 Here's a 'loot attractor' I came across a few years ago which I thought you might like to know about. You'll need 5 'O' levels or so but the only cash outlay required is to buy yourself a suit and tie. You then write to every high street bank in your immediate locale requesting an interview with the manager. You then visit the bank in question. After the interview you wait a few days or so until you receive a confirmation. You then start work at the beginning of the following month as a clerk. After five years you will become Assistant Branch Manager, learn all the passwords, transfer as much cash as you want to your own private Swiss account and disappear to a life of luxury in Brazil. Simple .

Jerry Parkinson, Rio De Janeiro

Blind androids

The Android from Rhyl should have his 'superior' digital scanning checked out. If it was working properly he would have noticed that the game being played on the Atari 8 -bit in DARYL along with *Missile Command* was in fact Caverns of Mars

Chris Roberts Prestatyn Clwyd

Dumb androids

OK, OK but you know how hard English can be for non-humans. I mean when was the last time you talked to Tim Smith

The Android , Rhyl Clwyd

I TALK to Tim Smith every working day and I think I can safely say that Tim exhibits all the symptoms of a condition known as 'singular genius'. This is because only he knows what the hell he's talking about but he finds it so difficult to explain to himself in terms that he can clearly understand that he believes he's smarter than he thinks. Try filtering that through your mondo recursive feedback circuitry me ol' droidy chummy pal

Mole hunt

A bit obvious, innit? Much as Jeff Walker's JAM deserves the publicity, plugging it every second week in the User Group Spotlight is a wee bit OTT, no? And the weeks that JAM isn't mentioned, Steve Williams' WACCI gets the spotlight. Could it be anything to do with the long standing connection between Messrs. Pomfret, Walker & Williams? I think we should be told.

Stewart C. Russell Glasgow Scotland

YES I HAD noticed that frequent bias myself. I'll get Andy Editor to sort him out for you. Any particular blunt instrument you'd like employed?

We might do

Do they mean us ?
Old Holborn's column NCE132 PAGE 16:

"During an interview published in a well known UK monthly Amiga magazine"

Spotlight column NCE132 page 45:

"JAM was the brainchild of ex-Amiga Computing editor Jeff Walker..."

I checked with Jason H and he reckons in the first instance it was creative subbing that translated Amiga Computing into "...a well known..."

When we mention the excellent work NCE has done on the "Door-to-Door" scam, I don't credit - "A well known UK weekly computer news magazine"

Amiga Computing, Macclesfield, Cheshire

Or maybe not

Hmmm... on newspapers I was taught never to mention the opposition. These days I think that's rather petty; if your mag is any good people won't suddenly defect as soon as they realise there's another available.

Barnaby Page, Ludlow, Shrops

GOOD LORD! What am I doing? That's mentions for *ST User* and *Amiga Computing*, *JAM* and *WACCI* and even Mr.Page of *PrePress* all in one issue. What more can I say other than rush out and buy all their mags right away! Honestly. Alternatively you might prefer to take all your hard earned money and throw it in the nearest canal.

Dolphin shock

Why do you feel it necessary to print photos of naked dolphins frolicking provocatively in hotel swimming pools? This is just the kind of gratuitous pornographic imagery which turns ordinary men into raging sub-aquatic bestial rapists. I, for one, am horrified.

Bill Pearson, Manchester

AN APPALLING lapse I must admit. It just goes to show how immune we've all become to crude images of the trouser arouser variety. I am at this very moment slapping myself vigorously with wet fish as penance

Mass debate

The computer world is in severe danger of disappearing up its own posterior. And for once, I am not talking about the ST v Amiga debate. This time what is really getting on my case is the Mac v PC mass-debate.

Windows Smasher was your headline. Surely not. Why do you the media have to play one perfectly good machine and O/S off against another. Windows and System 7 - not that I have used the latter - appear to be as good as each other.

I have been using a PC for some four years now, with upgrades, and I don't want a 'sexy new Mac'. The PC and MS-DOS works fine, Windows does the business, and frankly the Mac and the PC are worlds apart. All any one really uses the Mac for his high-end DTP. The PC is used in serious business.

Basically, as a plea: don't start a 'My Mac is better than your PC'. The Mac has a lot of catching up to do in Europe, no one I have met has seen one, let alone owns one. Frankly it is best left to the arty, creative types who can get the most from it.

Sorry this is so unstructured but the more I think about it, the angrier I get.

Mark Foster, Brighton.

OK HOW ABOUT us starting an argument right here? The best thing about PCs is that they're infinitely upgradeable. Which is just as well really since 90 per cent of them are dinosaurs. Before Windows 3 you needed a degree in computer science to use one effectively and even now you need a 386SX with loadsa memory which 9 out of 10 PC owners don't own.

1st of many?

I thought your comment about Atari last week was totally over the top. Leader of the Pack was a sixties song not a fifties one!

Kelly Burns, York

THANKS FOR that attention to detail there Kelly. For a moment I thought I was going to have to duck from all the flak they're taking up in editorial.

SWOT was it?

So why didn't you print all of the Atari SWOT analysis last week then - ran out of nerve did we?

John Fisher Clifton Nottingham

JUST A MISTAKE I'm told. Though I reckon we should just have run it as a full page in itself - it's not often a leading company honestly assesses its Strengths, Weaknesses, Opportunities and Threats in public.

Cooking tips

When are you going to start covering the computers that we see in everyday life without realising that they are computers?

I looked around my house last week and found several. The washing machine, microwave, oven, central heating, TV and Video all have computers in them for sure and I'm sure some of the other appliances have little logic circuits hiding inside them.

I'm sure that your review pages could benefit from say a round up of computerised cookers or micro powered microwaves. Who knows, maybe you could give away a sachet of cook-in-sauce on the cover

F. Craddock, Potters Bar.

IT'S A MESS here already without us having various kitchen items littering the place. But it might be worthwhile finding out which domestic gadget packs the most chips.

ON THE COUCH

The first of a brand new series of psycho-analytical tips for you and your computer. All you have to do is write in with the name of your machine, your favourite software, and the machine you'd most like to own.

Our resident psychiatrist, Dr Clare Anthony, will then lay you down on her leather couch and sort you out good and proper. So write in for a free diagnosis to : Leather Couch Clare, *New Computer Express*, 30 Monmouth St, Bath BA1 2BW.

She'll send you a fiver towards the machine of your dreams.

This week, it's Tim Fielding of Basildon
● MACHINE OWNED:
Amstrad PC1640
● FAVOURITE SOFTWARE:
F-19 Stealth Fighter
● DESIRED MACHINE:
NCube mainframe

Well Tim, this tells me a great deal about the potentially dangerous schism between the dynamics of 'desire' and 'repression' existing within your super-ego. Your unfulfilled desires for unlimited power are mediated through a continual channeling of violence which you live via the fantasy of piloting an unparalleled weapon of war. And you know what us Freudians say about weapons don't you Tim?

Basically, you are in deep trouble, doomed to the inevitable frustration of having to find £19 million to find a degree of comfort.

DIAGNOSIS: Find yourself a well paid job - possibly as chief executive of Apple Computers. Meanwhile, lock yourself up and save money by not eating anything.

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LOOK LOOK

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Note that Amiganuts United hold the worldwide copyright to this program and it will not be available through any other source.
The program is of such high quality that we could easily have put it on sale for **£50** or more!
However, Amiganuts and the author, Teijo Kinnunen, want it to be within the reach of all Amiga enthusiasts, so we are keeping the price down.
You can purchase this great program for only **£10.00**, within Europe, (£15 rest of the world). The price includes return post and packing.
Payment in pounds sterling only. If ordering from overseas, send a bankers order/Eurocheque etc. (Credit card orders will not be accepted).
Because of the exceptionally low price, it comes without glossy packaging and one page of printed documentation. (Instructions on the disk)
Please note that you are advised not to purchase this program if you only have the basic half-meg, as it does hog a lot of memory.
A full instruction manual for this program may become available later, but due to the high costs involved, it will be quite expensive!

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877:	1 ACROSS 2 DOWN. A fully fledged crossword program. It comes on two disks for only **£5.00**. Data disks 2 & 3 now ready, each	**£2.00**

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The Amiga Coders Club disks are packed with source, hints, tips, advice from many of the well known coders that are on the Amiga scene today. Issues 5, 6, 7, 8, 9, 10, 11 now available.

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ACC issue 12 is our birthday issue, (available 12th May), it is a 2 disk set and for the next two months you can buy both disks for **£3.00!!**

1038:	SUPER AMIDASH. Remember that good old Commodore 64 game Boulderdash? Well here is your chance to have that fun again	**£3.00**
1068:	MOD PROCESSOR V1.9. Make picture and/or music progs, adjust pic height/width. This version will load 8 Channel OctaMED music	**£3.50**

The following is a very small selection from the Public Domain/Shareware collection that we have collated over the past five years

	MED/OctaMED SAMPLES PACK. Six disks that are packed with samples for use with this excellent music utility (note one is very rude).	**£8.00**
	MED V3.10. Although not comparable to OctaMED, (see above), if you simply want to tinker with the keyboard it will satisfy. (1 Meg is advised)	**£3.00**
1047:	TEXTPLUS V3.0EN is here! The extra facilities on this new version are unbelievable and would take half a page to describe!	**£3.00**
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724:	6 GOOD DEMOS + a game. The Questor Cowboy anim. is good	£1.50
728:	UTILS. The famous Boot-Shop, Boot-Kit + others	£2.50
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907:	SNAKES & LADDERS. Excellent game for the family. 1 Meg	£2.00
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1040:	BALLOONACY. An excellent game for the children. 1 Meg	£2.00
1048:	DO THE BARTMAN. A fantastic version by Freehand. 1 Meg	£2.00
243:	THE DEFINITIVE JARRE SHOW. Good music & pics by HCC	£1.50
265:	HOW I CAUGHT AND DESTROYED A VIRUS (animation). 1 Meg	£1.50
300:	CLASSICAL MUSIC 1. Runs nearly 50 mins. (By Rob Baxter)	£1.50
398:	GHOSTPOOL and SPIGOT Animations by Dr. Gandalf. 1 Meg	£1.50
933:	A-GENE Genealogy. The very latest V3.125. 1 Meg	£2.50
939:	FRAXIONS NEW MEGADEMO. "The Wall" It's good!	£1.50
942:	SYNERGY. Well presented sculpt 4D pictures	£1.50
950:	THE EVIL DEAD by Possessed. Can you kill the Zombies	£1.50
967:	STEREO 3D DEMOS by Exit. (Great! But needs 3D glasses).	£2.00
1021:	AT THE MOVIES. Animation with sound efx. 1 Meg	£1.50
1034:	AREXX PROGRAMMERS TUTORIAL DISK from the S.W.A.G. group	£1.50
1037:	GAMES. Klondike, (great version). Simon, (fun for kids)	£1.50
1052:	DRIFTERS DEMO. "The Prisoner" & "Six of One" are great.	£1.50
1061:	DRAKPACK. "The Cyborg" demo. It's a must have! 1 Meg.	£1.50

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AMIGA

- **Embrace Mac power with the new A-Max II Plus**
- **Alternative Image take on Real 3D for ray tracing**
- **Shock horror! The best Amiga PD demos at last**

A-MAX 2 PLUS SOON

It's been along time coming, but ReadySoft's 'Mac on a card' emulator, A-Max II Plus, is almost here. According to UK distributor Entertainment International, the card should be available some time during June/July at a retail price of about £400.

For those of you who have been on Mars for the last few months, A-Max II Plus is a plug-in card for the Amiga 2000 upwards that adds the power of an Apple Macintosh to the Amiga. With its built-in AppleTalk connectors, MIDI compatibility and support for direct reading and writing of Mac-format diskettes with standard Amiga drives, A-Max II Plus promises to be a one-stop solution for anyone needing compatibility with the Mac. You can now connect your Amiga to AppleTalk networks and peripherals during Macintosh emulation without the need for a separate (and expensive) AppleTalk card. Mac MIDI sequencers such as Performer, Vision and Cubase can be used without having to invest in a £200 Mac MIDI interface (everything is expensive on the Mac!).

You can expect a full review of A-Mac II Plus in a future issue of *Express*. You can find out more in the meantime by phoning EI on 0268 541212.

LIFE IN THE FAST LANE

I recently received a letter from Mr G. Baxter of Ipswich concerning ICD's recently released ADSpeed accelerator card. Mr.G wants to buy the card to install inside his 3 Mbyte A500 but he has found information a little thin on the ground. Well Mr.Baxter, I'd love to tell you all about ADSpeed, but Silica Systems have still to send me a review model (although they have promised to send it to me on many occasions).

Last week I got the chance to fiddle around with one and I wasn't that impressed. In my opinion, the increase in speed that ADSpeed delivers is just not significant enough to justify it's £200 price tag. Personally I'd save up and treat myself to a real processor accelerator like those produced by Solid State Leisure. For an extra £95 you can buy the B5000-16, which is a 68020-based 16MHz card. It comes complete with a megabyte of 32-bit RAM with provision for a further 3 Mbytes.

You can expect a full review of the B5000 in a future issue of *Express* but in the meantime, Solid State are on the other end of 0933 650677.

ALTERNATIVE'S REAL 3D

Following the successful launch of Activa International's Real 3D ray tracing system, Alternative Image of Leicester have announced that they have taken on distribution of the new 1.3 version in the UK. The original release was impressive enough, but this latest one boasts features which further enhance what is generally regarded as one of the premier Amiga ray tracing systems.

These include power texture mapping with 8 levels of anti-aliasing, advanced surface mapping tools including bump mapping and clipmapping and full support for both IFF24 and Targa format 24-bit images. Real 3D is available in both a beginner's version and a Turbo/Pro version. The beginner's version costs a mere £142 while the pro version will cost you slightly more – £409, to be precise.

If all this talk of ray tracing has tickled your fancy, then give Alternative a bell on 0533 440041.

MED BUGS BUSTED

Those awfully nice people at Amiga Nuts United would like you to know that an updated version of Teijo Kinnunen's acclaimed MED music composer is now available. According to Ray Burt Frost of AmigaNuts, a couple of small bugs were found in versions 3.0 and 3.10 of MED, but these have now been fixed in version 3.11b. Also available from AmigaNuts is a new version of the excellent MOD Processor program which allows you to play tunes from just about any Sound Tracker clone from the Workbench. Version 1.9 supports both MED 3 and OctaMed 8-channel tunes.

For puzzle fanatics, Mark Meany's *Words 2* could be for you. It's a powerful anagram/puzzling solving utility that can make short work of word puzzles games. For more, contact AmigaNuts on 0703 785680.

A DEATH IN THE FAMILY

I'm in a state of mourning at the moment – my beloved Amiga 2000 has curled up its toes and kicked the bucket. During the few months that we spent together it had served me well, but alas the strain of all that review hardware was too much for it to bear. And one faithful day (last Sunday, to be precise) it happened – a series of gurus followed by a rather daunting blank screen announced that my Amiga was no more.

Thankfully, my beloved machine was still under guarantee, so it seemed that help was only a phone call away. I had heard many horror stories concerning Commodore's National Repair Centre, so my expectations were far from favourable. But, after a quick phone call, I was surprised not only by how helpful the nice people at the NRC were, but the extent of the service. Most companies I have previously encountered have required you to send the faulty equipment back to them at your own expense, but Commodore arranged for

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The acclaimed two volume set that covers versions 1.2, 1.3, 1.3.2 and 2 of AmigaDOS co-authored by *AS* Consultant Editor and industry guru Mark Smiddy along with Bruce Smith.

Vol. 1: A complete introductory tutorial on AmigaDOS. 368 pages for just £21.95 including a free Utilities Disk when ordered direct. Amiga Shopper said: *"...one of the most comprehensive and lucid books available on AmigaDOS"* – Cliff Ramshaw and Jeff Walker.

Vol. 2: A complete reference guide to all commands. 320 pages for just £17.95. AmigaBASE said: *"You won't find a better guide to, or a more useful book on the Amiga than this – unless it turns out to be Volume 1"* – John Walker.

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the faulty machine to be picked up from my home within a matter of days. Next, I was expecting a long wait before being reunited with my machine, but the nice woman at the NRC promised me that my beloved Amiga would be with me again in under two weeks.

In the meantime, I've been forced to go back to my trusty old Amiga A1000, a machine which I have owned for over five years now. Everyone seems to slag it off, but one thing is for sure – it's the most reliable Amiga Commodore ever built!

Jason Holborn

PICK OF THE PD DEMOS

Some said it would never happen, but here it is – the *Express* guide to everything that is good in the world of Amiga demos. Don't forget, all these demos (and more) are available from Seventeen Bit (0924366982) software for just 89p per disk.

GOLDFIRE MUSIC (1020A/1020B) – Yet another two disk music set with some very impressive tunes to pump through your stereo. In particular, 'Middle East Mix' is rather fun, featuring samples from news reports of the recent War in the Gulf. Hear Saddam get wicked!

• Find out what Amy does with that can-opener in the Amy Vs Walker demo.

AMY VS WALKER (1022) – Amy the Squirrel returns in this latest DPaint animation inspired by the famous 'Walker Demo'. I won't say too much about it, suffice to say that if you're after a giggle, then it's worth checking out.

GLOBAL TRASH (1026) – The Kefrens return with one of their greatest demos yet, featuring some of the most spectacular graphic effects yet seen on the Amiga including RGB Plasma, ray traced 3D objects and some very fast and complex vector objects. All this backed up by a great tune.

THE WALL (1027) – Definitely one of the best demos yet produced for the Amiga. This six disk demo (yes, six disks!!) is based around Pink Floyd's classic 'The Wall'. The entire demo is entirely anti-war, with each new scene demonstrating the futility and horror of modern warfare.

ST

- **What do those new plans at Atari really imply?**
- **Shareware becomes big business - is it a shame?**
- **Spectre GCR Mac-emulator upgrade races in**

STE PRICE CUT

You'll have already read about the price cut on the 520 STE and the new marketing position of Atari, but how will this affect all you lot, who've already bought an ST, thank you very much. Well for a start, if Atari gets its marketing plans right, then loads of people will rush out and purchase the only 16 bit machine worth having. This will mean in turn, that the perception of the ST, both on a commercial and a public level will change.

No doubt you'll have heard disparaging comments thrown about by some other computer owners which has led to mutterings that a certain software house is going to stop supporting the ST. The ST's user base is already easily a match for the competition and soon the software houses will cotton on to this and you'll start seeing more games and business programs appearing. It's a simple equation, but it's easily overlooked; the more people that buy the ST, the better it is for existing owners.

Atari has designed an excellent upgrade path; the 520 STE Discovery Xtra pack is an good start point. Then, if you want more power, you can upgrade the memory or the speed on to a 1040 STE. The Mega STE is the next powerful step up the ladder. With this machine you get a computer that can switch between 8 and 16 Megahertz. This means you can retain compatability with all your existing software, yet still enjoy the increased processing power.

With the right marketing the Mega STE could be the next big thing. There are mutterings that Atari might produce a Mega STE education pack along the lines of the Family Curriculum pack, enabling schools to purchase a very fast computer, with an intuitive front end and a wealth of decent software.

There are great plans afoot for the Mega STE. Atari has confirmed the existence of its STT add-on transputer board. The speed and processing power of this hardware is simply mind boggling. With the standard configuration you could run software at up to 40 MIPS (millions of instructions a second), which isn't bad when you consider that at present it runs at about half an MIP. And at a projected price of about £500, Atari is giving home computer users the opportunity to sample real computing power.

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One thing puzzles me though. Atari has put the price of the Mega STE up by £100. This was explained to me by Peter Staddon, Atari's marketing manager, who said that they were being screwed about by the dollar/pound exchange rate. But Atari is touting the Mega STE as a Mac basher, and when you can pick up a Mac Classic, with hard drive and a couple of megs of RAM for £650, their argument is severely weakened. Alright, so the ST software is arguably better than Mac software, but there's a completely different perception of the Mac as a business solution. Atari has got to alter the public perception of the ST. Until people start talking about the Mac and the ST in the same sentence , things won't change.

SELLING SHAREWARE

The public domain scene has changed beyond all recognition over the last year. It used to be the case that there were five or six public domain libraries, dealing with fairly small numbers of punters and small profit margins. However, as PD has taken off, so has the "Men in suits" perception of the market.

This point has been rammed home by the arrival of a new shareware company called Akore. These guys are dealing with massive advertising budgets and probably, massive profit margins.

The company's catalogue is a very professional-looking affair with a cover price of £1. It includes a large number of programs previously unseen in this country, and where familiar programs are included, it's only the decent stuff. There are no demos, the company operates a charge-free credit card hotline and claims to have a very quick turn around rate.

Companies like this will undoubtedly force many of the amateur operations out of business. If too many companies have to drop out of the market, then people like Akore Shareware can start pushing the price of their disks up, thereby negating the whole point of public domain. Akore Shareware lives at Freepost Akore, Nottingham, NG1 1BR, telephone, 0800 252221.

INSPECT A SPECTRE

Spectre GCR is an excellent Mac emulator which runs on all STs. It can emulate a Mac faster than the Mac runs itself. Well the guys at Gadgets have just come up with version 3, and the improvements are great.

For a start, they've included a turbo SCSI option. This means you can push your hard drive to new limits. All the old incompatability problems have been dealt with. Disks now eject far quicker, the Mac Plus's numeric keypad is supported, and you can now simply pull down and print to a laser printer. If you use a Mac at work, and would like to bring your WP files home, then Spectre is an excellent option

Spectre GCR is available from all main dealers, though I recommend Ladbrooke Computing on 0772 203166.

Andy Hutchinson

PC

- DOS 5 hidden feature wows LAN experts
- Geoworks ensemble for Postscript
- Harvard and Lotus for Windows

DOS 5'S LITTLE SECRET

According to sources close to the company, Microsoft's long-awaited *DOS 5.0* is due for release in mid June. Reports say that it will be available through retail outlets as an upgrade. Incidently this particular version of DOS will be the first to carry the Microsoft name. Apparently *DOS 5.0* will cost in the region of £60.00 although no confirmation was given by Microsoft.

Those system users who run a LAN network may be interested to hear of a little known feature lurking in the bowels of *DOS 5.0*. Apparently, the new DOS version will allow LAN users to update to the new version over the network. This has been hailed with cheers by LAN experts because it will help maintain configuration consistency on networked PCs. Microsoft had no comment on this new feature. Contact Microsoft on 0734 500741

NEW GRAPHICS FOR DOS

Harvard Graphics 3.0 for DOS and *Harvard Graphics* for Windows are the headlines from stateside outfit, Software Publishing Corp. The DOS version is expected to ship this month, while the Windows offering won't be ready until the end of the year, according to sources briefed on the company's plans.

Over the other side of the tracks is Lotus Development Corp. Lotus has just shipped *Freelance Graphics* for DOS, Version 4.0. In addition, there are rumours that Lotus plan to arrange a preview of *Freelance Graphics* for Windows in the near future. The likely appearance of *Freelance* for Windows 3.0 is around September/October.

INTEGRATION'S HERE

Spinnaker Software Corp. is expected to unveil *PFS:WindowWorks*, one of the first integrated packages for Windows 3.0, in the near future. Based on Spinnaker's DOS integrated package, *PFS:WindowWorks* has eight modules, and data can be shared between the modules by creating hot links.

The program includes a word processor with page-layout facilities, a spreadsheet, a dBase-compatible flat-file database with report and mail-merge facilities and a charting module. It also

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This is just a selection, all other models are available

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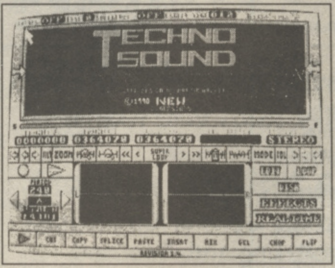

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FALCON UPGRADE?

Rumours abound that American owners of *Falcon* will be eligible for an upgrade to *Falcon 3.0*, the new and very impressive flight simulation from Spectrum Holobyte/Mirrorsoft, on production of the relevant proof of purchase. Will Mirrorsoft offer similar upgrade arrangements? Give 'em a call and find out.

It appears that Spectrum Holobyte is, at this moment, working on a utility to allow *Falcon 3.0* to run smoothly over a Novell network system allowing exciting multi-player options. I'll give you confirmation on this one when I get it. Contact – Mirrorsoft on 071 928 1454.

GEOWORKS ENSEMBLE

GeoWorks is expected to announce the latest version of their *Ensemble Version 1.2*. Specifically, the latest version adds PostScript printer drivers and a spelling checker. In addition, GeoWorks is reported to be developing a major upgrade which is hoped to be released later in the year.

Paul Rigby

NEW SERIES! – SPECIALIST SHAREWARE

This week sees the beginning of a series of news/preview items that looks at shareware and PD for specialist usage. This week? Why, it's DTP time!

Ask your local shareware vendor for a copy of *Desktop Paint 256* version 1, a VGA paint program. A high resolution (pixel level) VGA paint program, *Desktop Paint* runs from DOS. Okay, it's a little clunky compared to *GEM* or *Win3*, but this is shareware. The interface and tools work very well. Perfect for the occasional bitmap that needs some retouching. Intriguingly this program requires Super VGA as well as a mouse. It also supports Paradise + and Pro, ATI VGA Wonder, and Headland Video 7 or 1024i graphic boards.

Next is *Alphaquote v 2.3*, a program for estimating DTP and typesetting. It's useful for determining how much graphic products should sell for and great for comparing the price differences between DTP and traditional typesetting. This new version contains bug fixes to v2.2 and can use multiple rates (setup files). It is menu driven, has a graphic arts calculator, can offer disk or printed estimates, preview, online help and complete documentation. Contact: PD & Shareware Library, Winscombe House, Beacon Road, Crowborough, E Sussex, TN6 1UL. Tel: 0892 663298

ARCHIMEDES

- **Spring Computer Shopper show roundup**
- **Two new A3000 add-on releases from Pres**
- **EasiWriter word processing package unveiled**

SHOW REPORT

It seemed that much of the crowd at the Spring Computer Shopper show held at Alexandra Palace had mistaken it for an All Formats affair, and were still in shock after shelling out six quid to get in. Thirteen year olds do not want to attend seminars on application architecture, or study Taiwanese VGA cards. They want Atari. They want turtles. They want Amiga. They weren't there.

However, Minerva, Pres, Fourth Dimension and the Serial Port were, providing almost the only relief from wall-to-wall PCs. Minerva had nothing new, but was doing a brisk trade in old *Ibix the Viking* games. The Fourth Dimension was showing many of the games talked about in these pages (*Saloon Cars, Chocks Away Extra Missions...*) but not actually selling them yet. Its advertising seems to have got about four months ahead of the real release schedule for these games.

The Serial Port and QD Enterprises shared a stand to plug items like their new sound sampler, a new MIDI board and the Graphics Enhancer. These deserve more space than I've got this week, so I'll leave them for now.

DUAL PODULES

Pres had taken a sizeable stand, and had two new items to be proud of. The first, for A3000 owners, sounds rather prosaic: a dual podule box. Normal podules are attached, one at a time, to the A3000 via the rear connector, and protected by a podule box. Racking systems and podule housings from Watford and Wild Vision allow several podules to be connected but with a manual switch to select one or another. For example, you could add a scanner and hard disk card to the Wild Vision housing: scan in a sprite and you can't save it because the hard disk podule has to be switched off. Pres has overcome this by clipping an extra connection to the podule select circuit inside the A3000. It does the same job as inside a 400-series Arc, and allows you to use two normal podules at the same time.

The Missing Link was also on show and is being marketed as a (very) fast link between two Archimedes. It's a tiny board that plugs into the Econet board

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Mannesman MTB parallel printer	£135.99
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Power Pack Software	£34.99
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Steinberg ** ALL PACKAGES **	RI.NG

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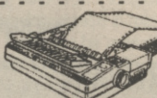

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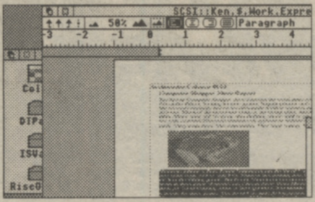

• EasiWriter, a powerful program with some nice Mac touches.

space inside any Arc. Two TML-equipped Arcs can be linked via a cable and can then communicate at over 10Mbits per second. Files can be swapped from one machine to another by dragging them into a 'Send' window or out of a 'Receive' box, or the system can act like any other filing system. A later development will allow a network of up to eight Arcs to communicate this way, with one acting as a sort of 'telephone exchange'.

AS EASI AS...

At first look, Icon Technology's *EasiWriter* is good. It's a windowed word processor which, unlike its obvious competitor *First Word Plus*, uses outline fonts and RISC OS printer drivers to the full. It has a very structured approach to writing – you can set up a hierarchy of chapters, sections and sub-sections, incorporate lists and so on, and each can have a text style associated with it. It definitely feels like a word processor rather than a DTP package, despite the fact that you can incorporate drawings and sprites into your document. Rather cleverly, these can even flow with the text, so you can use it along with Computer Concepts' *Equasor* as a technical authoring package.

Table creation is a dream – it's definitely the star turn. You tell *EasiWriter* to begin a table and just type. You can insert or delete rows, add borders and guidelines, and create items that span two or more columns.

The (as yet rather unreliable) beta-release of *EasiWriter* betrays some of Icon's strengths in the Mac world and relative inexperience of Acorn software. A couple of 'vital' functions are missing, in particular the ability to use the Copy key to delete forwards or to change case. But Mac touches, like any typing replacing what's selected, are neat. Sadly *EasiWriter* doesn't inherit the Mac's Tab key to move between fields in a dialogue. Later on this year, Icon will release *TechWriter*, a big brother with equation-editing facilities built in. There's already a 'junior version': by editing a simple text file you can limit the menu items that appear, simplifying *EasiWriter* down to bare essentials.

I can see this becoming the word processor of choice in the home and schools. The fact that it needs 2Mb to run could be just the excuse people need to upgrade. But businesses will remain sceptical of it until a mail-merge utility is released. Icon Technology: 0533 546225. Pres: 0276 72046.

Ken Coumarin

CPC

- **Goldmark upgrades Nirvana for the Plus**
- **Pang on arcade machine cartridge!**
- **All Formats computer Fair latest**

NIRVANA FOR THE PLUS

One of the unfortunate things about the new Amstrad Plus machines is that not all of the existing software out there will run on it. One of the main casualties was Goldmark Systems' *Nirvana* disk management software. Well now Goldmark is producing a new version which will work on both old and new machines. The only thing for Plus owners to watch out for is that some of the features will not work – the tape archiver, for example. This is because the 6128 Plus has no tape facilities.

There's a copy winging its way to my desk even as we speak, so watch out for it – and for some other Goldmark goodies, come to that.

PANG

Arrrggghh! Imagine being attacked by wave after wave of vicious killer balloons, great bouncing, monstrous, gaseous bags of... um... air.... Well, listen, it's terrifying, OK? It must be, or Mitchell Corp. wouldn't have used the plot for its fabulously popular *Pang* arcade machine. Come to that, Ocean must have thought it a pretty neat idea too, or it wouldn't have done a conversion for Amstrad cartridge machines.

These giant, inflated bladders are just so much hot air, mind. Give them a good poke with your harpoon gun and they just fall apart. Trouble is, they fall apart into two slightly smaller balloons, and these are just as fatal if they touch you. OK, then, give them another belt with the old harpoon-lobber... yikes! Even more, and even smaller, balloons! It's only the smallest balloons which actually disappear entirely when you hit them, so things are a bit tougher than they might be.

You start off with six lives, a time limit and a couple of big bouncy balloons to dispose of. The game is part reflex, part strategy. The reflex comes in when you try to dodge the wallowing gasbags. The strategy involves dealing with just one balloon at a time, so that you have the minimum number possible on-screen at once.

The action takes place against a variety of scenic backgrounds around the world. There are 17 different locations, each with 3 screens, so there's plenty to keep you going – especially

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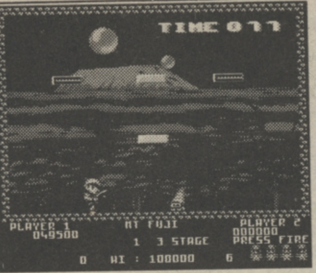
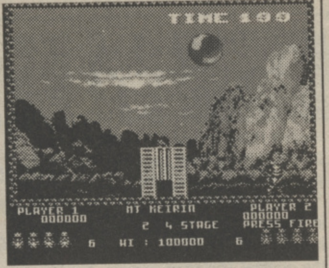


• Eek! It's a giant whelk! Don't walk into it, or you'll lose the power to shoot.



•You've got to be able to shin up those ladders pretty sharpish to avoid the balloons.

since every screen features a different 'puzzle'. Things start off easy enough, but later on there are ladders to climb, blocks to destroy and hazards to avoid.

There are also little creatures that wander on to the screen at times to either help or hinder you. A creature that looks like a giant whelk is a pain in the neck, because although it doesn't hurt you, walking into it takes away your ability to fire for several seconds. Crabs are much more useful – they use their claws to pop balloons for you!

You can also pick up extra weapons now and again, but some are more desirable than others. Avoid the dynamite in particular, since it immediately blows all the big balloons into their component little ones! Nasty.

Best of all is the simultaneous two-player mode. You get twice the firepower, after all. Only one problem – you get less than half the strategy. It's not necessarily that much easier.

Did I say the two-player mode was the best thing of all? Wrong. The best thing about *Pang* is the sheer quality of its graphics and sound. Ocean's programmers have done it again, with a cart game that defies its 8-bit origins. It's not quite ST-standard, but it's nearer 16-bit than 8-bit, that's for sure.

Pang sells for the usual stiffish cart price tag of £25, but it is excellent. Gameplay is simple but superbly addictive, while presentation is excellent. If you've got a GX4000 or a Plus, buy it!

ALL FORMATS HOTLINE

Personally, I think all 0898 numbers are a bit of a swizz, but they occasionally have their uses – if only so that you can keep up with the latest venues for the All Formats Computer Fair. Don't expect all the glitz and glamour of the top national shows at these events, but do expect to pick up loadsa bargains.

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Rod Lawton

C64

- **The piracy argument spills over from Express Mail**
- **System 3's brilliant new cartridge games compilation**
- **Crystal Gazing: Looking ahead to future games**

PIRACY PREDICAMENT

Over the past few days I have been contemplating the subject of piracy,and no doubt the mention of the 'P' word has brought moans and groans of despair from many among you, but the subject is not as twisted or convoluted as it may appear. Ask a pirate (sorry, thief) why he/she pirates and the majority of excuses will be "The software houses charge too much – many games are not worth the high prices". So, ask a software house why its prices are so high and the majority of answers will be "the software pirates force the prices up by their actions". Are you thinking what I'm thinking? If greedy people keep their grubby mits off pre-release demos and new games then indeed prices may well fall. A very simple answer to a very serious problem... maybe.

It would be interesting to see whether the cartridge renaissance has done anything to curb piracy on the 64 (although I have recently heard rumours of a 'cracked' version of *Navy Seals* on disk). This then suggests another couple of reasons for piracy; people do it either to prove themselves as competent hackers or as a personal challenge. Is there actually an answer to the problem, or is it just a fact of life? Your views on the subject are very welcome.

ALL THE BEST

System 3, one of the firmest cartridge advocates, have recently released what I consider to be one of the best compilations around. The *Premier Collection* contains six of System 3's best games, for the meagre sum of £15.99 (cassette) or £19.99 (disk) – that works out very cheaply indeed. I've already reviewed the *Last Ninja* (Express 130), so I'll briefly cover the remaining five;The *Last Ninja II* is, not suprisingly, the sequel to the *Last Ninja*, and the gameplay is identical to its predecessor. The game is set in modern-day New York, and the levels span Central Park, the streets, the sewers, the skyscrapers, and eventually the bad-guy's headquarters. Graphics are superb, as is the Matt

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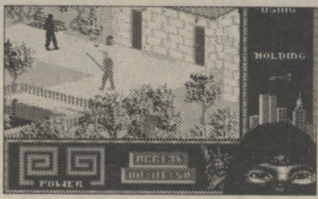
Gray music, and the puzzles are nicely structured (and often quite clever). The range of weapons is reminiscent of the original, but combat has a unique twist – when an enemy has been defeated you have a limited time before he regains his strength and attacks again. A highly playable game, but remember:there is VERY LITTLE difference between this and the *Ninja Remix*.

International Karate was probably the company's first major success, way back in 1986. It walked all over *Exploding Fist* in terms of graphic quality, animation, and the superlative Rob Hubbard soundtrack. It follows the usual a two player format, with the usual range of moves (as well as several humerous touches). Sadly, it does tend to show its age alongside newer releases (not to mention the excellent *IK+*). However it is extremely enjoyable to play, and the innovative bonus section is just the icing on the cake (albeit a tad stale!).

Dominator is a multi-level, multi-load shoot 'em up, and boasts a vast collection of extra weapons and ship enhancements. The graphics have been supplied by Dokk and Hugh Riley, and while they are both excellent artists in their own right, their graphics simply don't gel. So what you end up with are some surreal backdrops (with organic plant life and huge frogs) combined with shiny spaceships and aliens. Still, it offers the player some hectic vertical and horizontal stages, as well as some great music. I would not recommend it usually, but the price renders it unmissable.



• *Last Ninja II – a highly playable game.*

Myth is undoubtedly the best of the bunch, and the attention and care lavished on it simply oozes out. The game is set across several time zones, each based on various myths or legends. Levels include Hades, the Vikings, the Pyramids, plus an utterly superb ethereal level. While the game has a few faults and bugs, the astounding Bob Stevenson graphics captivate and enthrall. The only problem with *Myth* is that it's so fiendishly difficult! One has to try so hard to reach the next section, if only to see the display of graphics! A great game, but not for the short-tempered.

Flimbo'ds Quest is a jolly platform romp following the bog-standard 'Girlfriend is captured by evil tyrant and you have to kill him and rescue her' format. Flimbo is a cute little fellow, who traverses a number ofl andscapes picking up vital objects and money (to use in the inter-level shop). Of course, there is the usual selection of nasty enemies to hinder your progress – most of them are extremely cute indeed! The real joy about *Flimbo's* is the scrolling; superb two layer parallax, with loads of colour splashed around. The game is vaguely similar to *Hawkeye*, in that the walkabout/pick up element becomes slightly repetitive as the game progresses. Having said that, it's a jolly game at a laughable price.

To complement the *Hunter's* review in *Express* 131, here is a splendid little listing for infinite lives. It works fine on the original *Thalamus* version, but I'm not sure about the *Kixx* re-release – if it doesn't work, sorry. The game also loads slightly differently, so don't be alarmed!

```
0 REM *HUNTER'S MOON-INFINITE
LIVES-CASSETTE ONLY*1
FORA=544TO5912
READB:POKEA,B:C=C+B:NEXT3
IFC=5824THENSYS5444 PRINT"DATA
ERROR":END5
DATA32,44,247,169,21,141,177,3
6
DATA169,55,141,178,3,169,106,1
417
DATA179,3,32,108,245,169,67,14
18
DATA39,192,169,2,141,44,192,32
9
DATA191,3,96,169,244,141,154,3
510
DATA169,0,141,242,193,76,226,1
93
```

And here are some Action Replay pokes for the *Last Ninja II* and *Myth* (reviewed above). There is a poke for each level, and they reward you with infinite lives in both cases.

```
LAST NINJA II LEVEL1 - POKE
37456,173 LEVEL2 - POKE
36690,173LEVEL3 - POKE
31852,173LEVEL4 - POKE
35481,173LEVEL5 - POKE
35771,173LEVEL6 - POKE
36879,173LEVEL7 - POKE
34444,173MYTHLEVEL1 - POKE
24830,165LEVEL2 - POKE
24882,165LEVEL3 - POKE
24952,165LEVEL4 - POKE
23672,165
```

ON THE HORIZON

It's official – the software slump is now upon us, indeed sister magazine *Commodore Format* has received only a handful of games for review over the past few weeks. Perhaps the only games to be found until July will be compilations and budget re-releases.

There is no need to shed a lonely tear – it happens every year. The only consolation is the thought of all those great games in the future. Here are a few titles which should be worth the wait; *The Hits II* (Thalamus) another great compilation featuring Snare, Retrograde, Creatures, and Summer Camp. *Night Breed II* (Ocean) Not sure about the title, but the game (based on a Clive Barker novel) should resemble its so-so predecessor quite closely. *Toki* (Ocean) a conversion of the 20p eating arcade machine, should be something to look out for. *Creatures II* (Thalamus) I've seen a recent demo, and the game looks 'well cool'. Needless to say, reviews of these titles are imminent.

Andy Roberts

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SPECTRUM

- D.I.C.E disk doctor utility improved - for the SAM too!
- CodeMaster's Slightly Magic: Destined to go to the top?
- Two totally red hot pokes for Total Recall and Bumpy

DICE IMPROVED

For a few years now Plus 3 owners have spoken in reverential, hushed tones about *DICE* – a disk doctor type utility for their machines from Kobrahsoft. The Disk Information Copier Editor, to give its full name, is a powerful utility packed with impressive features, and in true washing powder style is now new, improved and better than ever with the release of version 3.0. Not only that but there's also a SAM version to boot which is a definite boon to Coupe owners lives, make no mistake.

DICE offers a multitude of functions that let you manipulate your Plus 3's disk drive for all you're worth. With it you can access any part of the disk; make backups; read, examine and change any sector; get a full directory listing; recover erased files; read file headers; and see a graphical display of how much space is left on the disk and where the files are located, to name the most impressive features.

This latest version also provides high capacity formats, which means 178K, 193K and 203K-sized disks are now possible, and an option for extended directories.

DICE Version 3.0 in its Plus 3 incarnation costs £14.95 on disk with a chunky manual. The SAM version seems pretty similar but that's no bad thing and comes complete with a similarly thick and well-written manual for only £12.95 on 3.5-inch disk. Kobrahsoft tell me it's compatible with all Coupés, whatever ROM they might have, although they're not sure how harmoniously it will co-exist with the new MasterDOS at the moment.

You can find the pretty clever people at Kobrahsoft Software by writing to "Pleasant View", Hulme Lane, Hulme, Longton, Stoke-on Trent, ST3 5BH.

MAGIC MOMENTS

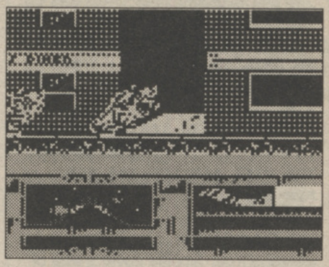
Last week I printed Mark Harris's poke for *Slightly Magic* and thought "what's that then?" thereby showing how untrendy and out-of-date I am. In a desperate attempt to "get with it" (man) I put on my wing-collared shirt and afghan coat and went out to purchase it. Now I know the said thing is a CodeMaster's cheapie and a very good one at that. It's another one of those arcade adventures they're so good at churning out although this time without any sight of their lovable star character, Dizzy. Instead you control Slightly, a well-animated wizard who needs to rescue a princess from a dragon. But don't let that last sentence put you off because *Slightly Magic* is very well done indeed with loads of colourful and deviously arranged screens to get through.

There's the usual assortment of nasties, all well-drawn and animated, who luckily can be seen off with various spells that you can collect. Mainly it's a case of picking up objects and spells and using them all in the time-honoured arcade adventure style.

Definitely a cut above the average budget offering, this is a welcome and original departure from tired re-releases and ripped-off arcade clones that make up the cheapo market. Hurrah for CodeMasters!

Anything you want to say to me? If you've got any comments, criticisms or suggestions regarding the column I'd welcome them with open arms and cheers aplenty. Also wanted are any tips, pokes, wrinkles or cheats for the Speccy, either for games or general using. Send everything to me, that's Robin Alway at The Spectrum Column, *New Computer Express*, 30 Monmouth Street, Bath BA1 2AP. Much appreciated!

PRIME POKES



• Follow the routine of the prime pokes and you will get ahead in Total Recall.

I've got two finest quality prime pokes for you this week thanks to our old brother and homeboy, Mark Harris. The first routine is for *Total Recall* and it hasn't been done by anyone else apparently. In case you're not clear on all this hacking business, the face saving, score enhancing benefits of pokes can be yours if you do the following:

1) Type in the listing
2) Save it if you require its help again
3) RUN the program
4) Start your game tape from the beginning. That's it.

```
10 REM TOTAL RECALL 20 FOR
N=61412 TO 9E9: READ A: IF
A=999 THEN POKE N,A: NEXT N 30
PRINT "START 'TOTAL RECALL'
TAPE";USR 61412 40 DATA
221,33,14,175,17,0,16,62,255,5
5 50 DATA
205,86,5,48,241,62,144,50,0,19
1 60 DATA
175,50,2,191,195,109,175,62,17
6,50 70 DATA
52,190,33,18,240,17,223,176,1,
```

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```
50 80 DATA
0,237,176,195,13,191,62,206
90 DATA 50,192,133 : REM
AMMO 100 DATA 50,4,99 : REM
TIME 110 DATA
50,252,101,50,156,130,50,195
,146,50,93,170 : REM ENERGY
120 DATA 195,223,190,999 :
REM END
```

This second listing is for Bumpy, an excellent Your Sinclair cover game of a while back. Follow the instructions above to get it working and leave out any poke you don't want. Mark assures me the hacks should work as Multiface pokes as well. What a bargain! Infinite thanks for all eternity go once again to Mark. And he'd like to say hello back to fellow hacking personage Steven Kemp.

```
11 POKE 47771,0 : REM LIVES
12 POKE 47386,0 : REM
HAMMERS 13 POKE 51576,0 :
POKE 52155,0 : REM KEYS 14
POKE 51717,0 : POKE 52296,0
: POKE 52807,0 : REM WATER
15 POKE 43963,86 : REM 99 of
everything 16 POKE 47976,x :
REM START LEVEL PLAYER 1
(x=0-99) 17 POKE 47992,x :
REM START LEVEL PLAYER 2
(x=0-99) 18 REM start level
poke needs 99 of everything
to work 30 MERGE "": RUN
```

Robin Alway

MACINTOSH

- **The first funny bugs in System 7 begin to surface**
- **How to improve your Finder's functionality**
- **Font conversion the easy way - thank the lord!**

RUMOURS...

Want to see a bug in System 7? Try this: type some comments into the Get Info window (which is accessible from the File menu) and click on the check box to lock the file. Close the Get Info window and then open it again. Hey presto! – your comments were not recorded by the Finder. To make sure comments are kept, you have to type them in, close the window, open it again and then lock the file. Not a spectacular bug, but enough to keep Apple's software developers on their toes...

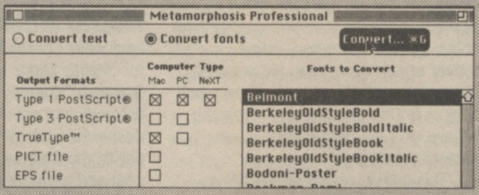
Incidentally, if you're still unable to get your hands on System 7, it's worth taking eight disks into your local Apple dealer and asking if they'll just copy the new System for you. Apparently it will be another month or so before all the documentation is available in quantity – and the full package, of course, will cost you £50. But if you can make do without the manuals, many dealers will copy the software for you free of charge. Of course, you'll find they're more likely to do it if you actually bought your Mac

METAMORPHOSIS PRO

The main complaint from people who use Adobe Type Manager (ATM) is that it can't cope with Type 3 fonts – which means that many older fonts appear jagged on the screen and don't print out well on QuickDraw printers like the StyleWriter. Well, help is at hand from a neat program called Metamorphosis Professional.

Metamorphosis Pro is a font manipulation program which allows you to, among other things, create editable outlines of any font (so you can easily create logos and so on) and convert fonts between Mac Types 1 and 3, as well as TrueType, PC PostScript and NeXT (as if anyone actually owned a NeXT). So, while this might seem more like a professional font designer's tool, many will see its great advantage as allowing users to convert all their old fonts so that they will run under ATM.

The program is easy to use – converting fonts is especially easy, with only a few keystrokes required. Although the program costs £110, this is fairly reasonable when you consider that one new font could well cost you the same amount. And if you have a QuickDraw printer and System 7, you could convert all your PostScript fonts to TrueType so that you don't need to use ATM at all. Metamorphosis Pro is highly recommended. Contact Softline on 081 642 4242.



○ Convert text
● Convert fonts

Output Formats	Computer Type Mac	PC	NeXT
Type 1 PostScript®	☒	☒	☒
Type 3 PostScript®	☐	☐	
TrueType™	☒	☐	
PICT file	☐		
EPS file	☐		

Fonts to Convert
- Belmont
- BerkeleyOldStyleBold
- BerkeleyOldStyleBoldItalic
- BerkeleyOldStyleBook
- BerkeleyOldStyleBookItalic
- Bodoni-Poster

• Metamorphosis Professional: Makes converting between font formats child's play.

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One thing that has upset some people is that removable hard disks cannot be used as virtual memory storage areas under System 7. But then, as one Mac developer said, "Removing a hard disk while the Macintosh was using it for virtual memory would be rather like ripping out SIMMs while the Mac was still turned on!"

Apple Computer in the States is facing a lawsuit which claims that the company made false financial statements to the public in 1991, prior to its May financial report on the third financial quarter, which said that corporate earnings were under pressure. An Apple spokesman has said that the claims are "completely without merit", and that the company will oppose them all. Following the financial statement, Apple shares dropped somewhat; the plaintiffs are hoping to bring suit on behalf of all purchasers of Apple common stock between January 17 and April 30 this year. Some of the officers and directors of Apple have also been named in the case.

Appple has ordered a new Cray supercomputer, said to be worth over $4.6 million. It will replace the Cray that Apple bought in 1986, and will be used for research and development into subjects such as the flow of air and dust particles in computer cases.

Rumour has it that an Apple executive met a Cray exec just after the purchase of the first supercomputer in 1986, and told him proudly that Apple was going to use the Cray to help develop new Macs. "So what," replied the Cray executive; "We use Macs to help develop new Crays!"

ALIASES AND IMPOSTERS

There is one thing which is incredibly annoying when using the Macintosh. If you double-click on a document which has been created with an application not on your hard disk, you are met with a dialog which tells you that "the application is busy or missing." Fortunately, I'm not the only one to find this a pain in the neck, and some programmers have done something about it. Two utilities are about which cure the problem – the shareware *Application Replacer*, and *Imposters*, which is free.

Both require setting up – *Application Replacer* is easy, while Imposters requires you to use *ResEdit*, which is not for the fainthearted. Once you've done this, double-clicking, say, a *MacWrite* document will open the word processor of your choice and will read the file in (assuming that it understands the format). Both utilities are available on CIX, in the 'mac/files' list; my choice is for *Imposters*, but remember that you will also need *ResEdit* to use this one.

Those who fancy having 'aliases' of applications (1K or 2K files which, when double-clicked, open the real application) don't have to upgrade to System 7. Again on CIX is an application called *Alias* which creates, yes, aliases. It's easy to use, and means that you can have at least a tiny bit of System 7's functionality without going through the hassle of upgrading.

Ian Wrigley

POSTCARD FROM AMERICA

The IIsi is the junior partner in the high end compact Mac line. It offers 68030 power at an "affordable" price. But owners have noticed that there are times when the IIsi slows down. One is when it's performing tasks that could use a math co-processor, which is optional. The other slowdown comes when displaying 256 (8-bit) colours on the screen.

Several compact Macintosh models use a portion of RAM memory for video display. This is a good feature, since it doesn't force users to install costly video boards. Unfortunately, the more color you want, the slower things get. A 5Mbyte IIsi runs two times faster when displaying only black and white, over 256 colours. Things get a bit better when running only 16 colours, but still slower. What's going on?

There are two banks of memory on the IIsi motherboard. Bank A is always used for the video RAM. The second bank is filled with whatever flavors of single in-line memory modules (SIMM) users can afford. The memory bottleneck occurs in Bank A.

As the Mac boots up, the video and other parts of the operating system are loaded into the memory heap. This doesn't fill up all of the megabyte of RAM in the bank, and there's still plenty of room for most applications. All of this action makes the bank so busy that access slows – just like making a deposit on pay day.

The solution is simple – force the Macintosh to move the applications out of Bank A and into higher Bank B memory, where it's not involved with the video. Apple provides users with the tool to accomplish this business – the RAM cache setting in the General CDEV (or the Memory Control Panel in System 7).

If the RAM cache is adjusted to 768K or greater, there's no room in Bank A for applications. It's all video and cache, which makes the IIsi run almost as fast in 8-bit colour as in black and white.

This trick also works for users of Macintosh IIci running on-board video. That's a real cachiers check.

David Morgenstern

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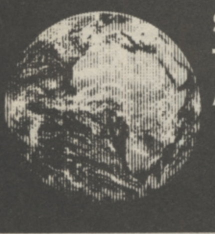


Steve Gold continues his search for hot computer news from around the globe. This week he's checking into the White House for the latest on piracy, monitoring Apple's next moves, getting networked up and trying out German peripherals...

GET TOUGH WHITE HOUSE BEGINS TO BACK ANTI-PIRACY PUSH

The US Government is to help stamp out rampant piracy in the Far East, and other parts of the world.

The common need for the protection of intellectual copyrights brought company giants from the computer, pharmaceutical and movie businesses to the White House recently where they testified before a US congressional committee. All appealed for an endorsement of negotiations for a free-trade agreement with Mexico and a new round of lowering international trade barriers.

The meeting ended with the US government agreeing to seek stronger commitment from all its trading partners over intellectual property rights.

Put simply, this means that, if non-US companies are looking to do business with the US, then their governments must look very seriously at passing appropriate legislation to protect valuable intellectual copyrights.

For the computer industry, this means that the flow of pirate software from the Far East and other countries that do not recognise international copyrights will cease or at least be considerably slowed down.

US and European business software publishers say they are losing millions of dollars every year, because certain countries are not taking software piracy seriously. But financial based pressure from the White House is sure to prompt rapid changes.

• *White House won't accept blatant piracy.*

GERMANS BOOST PORTFOLIO

Despite what the adverts say, the Atari Portfolio being sold at £199 comes with just 128K of RAM. While this can be expanded to 640K using expansion cartridges, it is an expensive way of boosting memory to that of a basic desktop machine. Which is why Becker & Partners in western Germany has come up with a low-cost expansion system for the pocket machine.

Becker & Partners' solution is to latch on what it calls a Trans Drive to the Portfolio. The interface unit connects the Portfolio interactively to any PC compatible, allowing it to access RAM and disk drives attached to the PC on a purely transparent basis.

Pricing on the Trans Drive is quite reasonable at DM 198 which works out to be around £80.00 at current exchange rates. The company also supplies budget RAM modules for the Portfolio, if you really have to expand memory while on the move.

Contact: Becker & Partners Mobile Datensysteme, Postfach 190, Wilhelmstrasse 91, Biktoriastrasse 51, 5100 Aachen, West Germany.
Tel: 01049-241-509018
Fax: 01049-241-509577

APPLE TO LAY OFF 1,500 STAFF

Despite the fact that the trio of Mac Classic computers - unveiled last October - are doing well, the recession appears to have hit even the mighty Apple. The computer giant is reported to be getting ready to axe 1,500 jobs.

The good news - for users of the Mac at least - is that the bulk of the job cuts will be in administrative departments and shouldn't directly affect sales and support of the Mac.

Layoffs are not particularly new for Apple. These will be the fourth in the company's 15-year history. In 1981 Apple shaved 40 people from the payroll, while in 1985 1,200 jobs were lost and a further 400 staff were axed last year.

HAYES STEPS INTO LANSTEP

Hayes has confirmed that its *Lanstep* Network Operating System (NOS) is now shipping to resellers in the US.

Plans call for the technology to be unveiled in the UK on May 29. According to Dennis Hayes, the company's president, the UK rollout marks the first stage in a series of European launches for the technology.

"We first unveiled *Lanstep* at Boston Networld in the US and the response has been excellent. Resellers appreciate the unique opportunity that the technology offers," he said. "What Hayes has done is to combine the benefits of low end networks - cheap pricing, ease of installation and DOS compatibility - with the features of high-end systems," he added.

Hayes went on to explain that *Lanstep*'s pricing is in line with current low-end systems, yet has all the advantages of a high-end system without the negative aspects of high-end systems - high pricing and intensive use of valuable system resources.

Hayes has gone for a modular approach with *Lanstep*. The basic starter kit for up to five users costs $595.00. A developer kit is available for the same price. Upgrade packs, which add another five users to the network, cost $395.00, while a mail gateway upgrade costs exactly the same.

Ten years in the making, the system started to come together about three years ago at what was then Waterloo Micro Systems in Waterloo, Canada.

"When we acquired Waterloo in 1990 we realised the potential of the technology which the company was already marketing. *Lanstep* is a completely new technology system," he said, adding that it represents the third generation of networking systems.

One key feature of *Lanstep* is the fact that data is written straight to disk rather than held in a caching system. This means that an uninterruptible power supply is not required, thus cutting the costs of installing a network still further.

All this is good news for the low end of the networking market - it's bound to force pricing of existing low-end systems such as Sage and the like down still further as the competition bites.

EXPANDING NOTEBOOK DRIVES

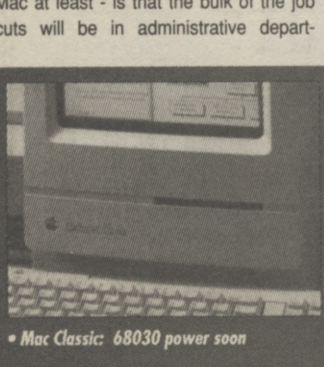
Watch out for larger hard drives on notebook PCs soon. Seagate Technology has expanded its range of 2.5 inch form factor hard disk drives by adding two units specifically designed for notebooks.

The new ST9077A drive, when formatted, can hold up to 16Mb of data and comes with an embedded AT interface. Seagate says that since the parts that drive the mechanism, the actuator and spindle motor, are attached to the cover and base of the drive itself, they can withstand greater force than other designs; the company claims the drive can withstand forces up to 150Gs.

The new drive tips the scales at just 6.5 ounces. Access time is rated at under 20 milliseconds. Seagate expects the drive to be available in the third quarter of this year.

The second addition to the Seagate stable, meanwhile, is the ST9038A, a 32MB version with broadly the same specifications apart from larger data capacity. It will be ready by autumn. ■

NEW MACS WILL PACK SERIOUS POWER



• *Mac Classic: 68030 power soon*

Senor figures at Apple have promised that the next generation of Macs will feature the impressive and fast Motorola 68040 microprocessor.

At a recent San Jose conference, top brass are reported to have stated that a tower Mac is in the pipeline and revealed that 24-bit colour would come as standard on the machine.

Also in the pipeline from Apple is a Mac Classic based on the 68030 microprocessor. That's good news for budget Mac users since the only way currently open to the low-end users is to either upgrade a budget Mac using a third-party 68030 system card or shell out for a full 68030-based system.

You may ask 'do I need a 68030 microprocessor?' According to Apple it's not essential, but the company is interested in getting rid of old stock before it starts hyping the new machines.

The advent of System 7.0, however, means that a 68030 microprocessor is fast becoming as essential for serious Mac work as the 386 microprocessor is in the PC arena.

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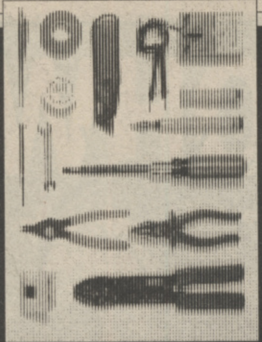
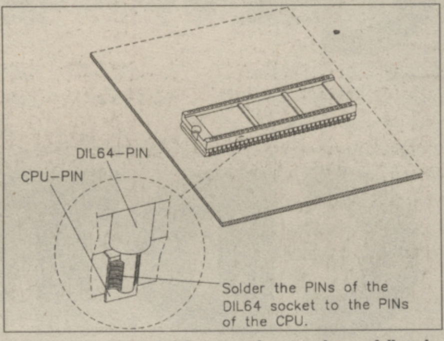


CIRCUIT CITY

Choosing whether to buy a PC or an ST used to be a difficult decision. Keith Pomfret looks at a PC emulator board for the ST that gives you the best of both worlds.

The Vortex ATonce is a hardware PC emulator for the Atari ST that allows the ST to emulate an IBM AT style PC and run PC software. There are two versions of the ATonce. The original 8MHz version and a new 16MHz plus version with the ability to display in mono VGA. The ATonce will run on any 520, 1040, 1040STE or MEGA ST, but a bold warning in the manual suggests that the installation should only be undertaken by Vortex or an authorised distributor.

The installation includes a very delicate soldering job directly attaching a socket for the ATonce board to the legs of the 68000 central processor. As there are 64 legs and they're all very close together, it is a job just begging to kill your computer if you're not competent.



• Each of the 64 legs of the DIL socket must be carefully soldered to the 68000 processor on the ST's motherboard.

HOT STUFF

The ATonce carton contained an ATonce board, 64-pin DIL socket, a manual and system disk. The hardware is protected by an anti-static bag and the manual warns that an anti-static workplace is necessary to do the job. This is because the ATonce contains CMOS components which can be permanently damaged by the static electricity which builds up in the human body.

The manual further suggests that the person undertaking the installation be grounded against electrostatic charges using special wrist bands. The manual is intended for installation and to be a general reference document. For those who want a fuller reference, the ATonce technical manual is available from Vortex.

Before starting with the hardware side of the upgrade, it's necessary to make a copy of the ATonce system disk, then the ST should be unplugged and removed to a well lit and anti-static working area.

THE INSTALLATION

The ST should be disassembled according to the instructions for your model. With our 1040STFM, we followed the instructions to split the two halves and remove the keyboard. The metal shield within was tricky to remove as it involved twisting metal tags and removing screws. Once removed from the 1040, we needed to check which revision of the machine we had. Atari has made several versions of the 1040 – on some the STs 68000 central processor is in front of the disk drive, on others it is at the front under the keyboard to the left.

Our machine has the main processor under the keyboard and in order to make it fit, we cut away a section of the metal shielding and made sure that after installation it didn't touch the ATonce board. Insulating tape was used to mask the metal shield where it had been cut so it could not short circuit by the shield touching the ATonce. In other 1040s, it is necessary to remove the disk drive and dispense with one of the supporting legs to make room for it. Which ever model you have, it is covered individually in the manual.

STEADY HAND

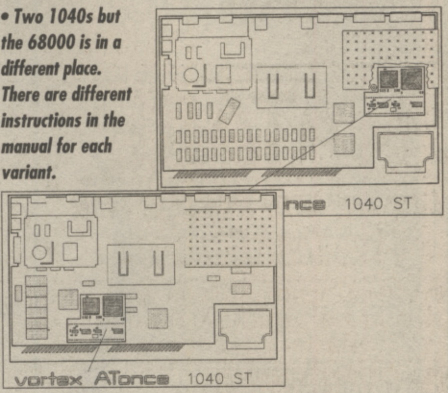
When you've worked out where the 68000 processor is, it's time for one of the nastiest soldering jobs that we've taken on in a long time. The 64-pin DIL (dual in line) socket has to straddle the 68000 and its legs have to individually soldered to the 68000s. The 68000 chip is a fraction over three inches long and in that length you have to solder two rows of 32 legs.

This soldering at around 10 joints to the inch takes intense concentration and the slightest slip could spell disaster. The 68000 is heat sensitive so if you're having difficulty persuading a joint to take, return to it after it has time to cool. Once it's in place you can insert the ATonce into the DIL socket being careful to align it in the way shown on the diagram in the manual.

Putting the ST back together is a reversal of the disassembly procedure and it's at this point that I disagree with the manual which recommends testing the machine without covers on. This should be avoided. To plug anything into the mains that has safety covers removed is stupid. Before it is plugged back in to test it, it should be re-assembled. When you've done this and you switch it on, it should boot as usual with the normal white screen. If it doesn't, something's wrong and you should switch the ST off and check everything.

ALMOST A PC

If the machine boots into the normal opening screen, you should put the ATonce system disk in. This will cause the ST to run the ATonce installer and then prompt you for a PC DOS disk. At this point you're ready to run PC programs on your ST.


• Two 1040s but the 68000 is in a different place. There are different instructions in the manual for each variant.

In terms of performance, although the ATonce is a 286 based AT style emulator, it must still make some concessions to the ST's hardware and runs with a performance closer to an XT than an AT. However, all well behaved PC software that abides to the IBM programming rules (and doesn't make hardware calls directly) ran alright. Some of the screen refresh rates were slow, but this is normal for emulators.

All emulators are a compromise, but of all those tested, ATonce performed the best. The £199 price tag plus £34 if you want it professionally fitted and say £50 for the PC DOS brings the price to £283, only £16 cheaper than a PC XT clone we reviewed recently.

If you want a versatile ST, get the ATonce, if you want a PC spend the extra £16 and buy the real thing. ■

Vortex ATonce ST (8MHz) is distributed by Silica Shop on 081-309 1111 and costs £199 inc VAT The faster running 16MHz AT Once Plus costs £229 inc VAT Peripherals for it are adaptors for MEGA STs and STEs The adaptors for the STE and Mega ST are £29

If you don't feel confident to fit the ATonce yourself and would like this emulator in your PC without losing your warranty, Silica Shop will fit the ATonce or ATonce plus for £34 without affecting your warranty

THE VERDICT

FOR

- ▲ Well specified hardware emulator that allows you to run industry standard PC software on the ST.
- ▲ Supports hard disks
- ▲ Well supported by distributor
- ▲ Works on all STs

AGAINST

- ▼ Not user installable unless you're a wirehead
- ▼ Delicate soldering could damage ST
- ▼ Most supported screen resolutions need mono monitor
- ▼ Adding ATonce to a new ST will kill the warranty

THOSE NECESSARY TOOLS OF THE SOLDERING TRADE

- ● Antistatic working area
- ● Medium cross head screwdriver
- ● Flat nosed pliers
- ● Metal shears
- ● Earthed electronic (or gas) soldering iron with very narrow tip
- ● Desoldering braid or pump
- ● Fine grade multicore solder
- ● Good lighting conditions
- ● Helping hands (sturdy metal base with crocodile clips attached).

Don't work on any machine that is plugged into the mains. 240v can and will deprive you of the rest of your life. It is good working practice to check everything on the bench before you start working to make sure that nothing is 'live'

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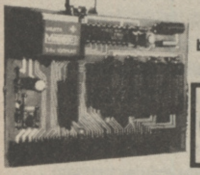

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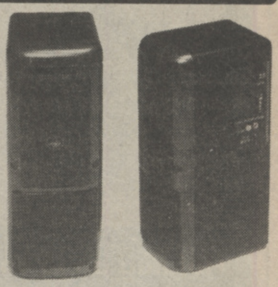

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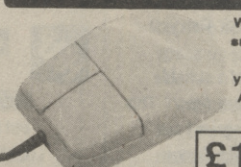

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TECH TIPS

Holding on to some terrific tips that other readers could use? Can't persuade your printer to perform? Getting in a muddle over your modem? Worry no longer. Write to Keith Pomfret, Tech Tips , New Computer Express, 30 Monmouth Street, Bath BA1 2BW.

Canon Fodder

I recently purcased a Canon BJ-10e printer which I am using with Atari STE and Cambridge Z88 computers.

When printing out from Pipedream on the Z88 the top line of print is out of alignment with the rest of the printed text, despite being lined up correctly on the Z88 screen.

I get round this by inserting a "blank line" at line one before printing, but I wonder if there is an adjustment I can make to the printer driver instead. Can you help please?

Do you know of a suitable printer driver for *Easy Draw*? This is the only Atari program I am unable to use with the Canon bubble jet.

Peter Dickie, Edinburgh.

The best place to get printer drivers and 'tweaks' for printer drivers is a good established PD library where the librarian knows the machine and has a web of contacts throughout the machine specific world. Most of the utility and application problems that people have will have been encountered before and the PD libraries tend to operate a loose forum in which problems are bashed around and programs and solutions are usually found.

For the Atari ST you could do a lot worse than to contact Goodman PD in the potteries. Mike Goodman runs a PD and Shareware library and regularly publishes a catalogue of his wares that includes news and reviews of the ST PD world. The Goodman PD library can be contacted at 16 Conrad Close, Meir Hay Estate, Longton Stoke-on-Trent. If you've a query you could give their enquiry line a ring on 0782 335650.

Dumb modem

You are my last hope of sorting out a problem I have with a modem that I received free gratis, but without manuals or other info.

Anyway, I have connected it to my Amiga 500 with a RS232 cable (I think!!) the pin layout below is what I have used.

Male	**Female**
2	2
3	3
5	5
6	6
7	7
8	8
20	20
22	22

These have come from the Amiga manual, but I am not sure if they are right. I am using NComm 1.9 (enclosed) but when I dial, the machine comes up with "Modem not responding".

Could you please tell me what I am doing wrong as it is a shame to scrap a good modem.

Andy Reeves, Rotherham.

There's nothing wrong with NComm so we must assume that it's either your cable, Amiga or modem. Test the cable for continuity using a multimeter. Assuming that it tests out OK try it on another Amiga/modem combination that is known to work. If that's OK and it's not the cable, check the Amiga by trying a modem/lead combination that's known to work.

If the Amiga checks out as OK, the problem is with the modem. As I'm not sure which modem you're using, I can't give you any specific advice as to procedure in making it work but here's a bit of general advice. If it's an automatic modem try typing AT and hitting the Return key.

This should bring the response 'OK' if your modem is 'Hayes ' compatible. Hayes compatibility is the industry standard for automatic modems. If this doesn't work and there are various switches and controls on the modem, try the various possible combinations of the switches while attempting to connect with an on-line service.

The sort of controls that you can expect to find on a manual modem are answer/originate, baud rate and on-line. To dial up a service you should pick an appropriate baud rate for that service, select originate and manually dial the number. When it answers and you hear the modem 'squeal' on the phone, select the on-line control and then replace the phone. If all is well, you should get the log on screen from the remote service. If you get garbage on the screen, check that your baud rate and protocols are set correctly. (A good place to start is generally 1200/1200 baud rate and 8N1 for a protocol, set in the software.)

GEM problem

I recently purchased a Trigen Model 88/e from UK Home Computers and up to now have been very pleased with it. Shortly after buying it I bought an old copy of Finesse DTP (VER1.1 the AMS version), with this came GEM/3. I had no problem in setting up, but lately I have come across a major problem, this is that the screen goes completely blank after only a short time in use (between 30 seconds and five minutes). This happens in the desktop and in Finesse and Psion's Gem Easel. The blanking is only reversible by a complete power shut off the system unit.

It also happens on a couple of PD games that I recently acquired. I have installed Gem more than once to make sure that the set-up is correct and is in Hercules graphics mode. Sometimes the screen does not clear at all and the remnants of the mouse pointer and menus are left on the screen until the system crashes completely.

Please help as I am a poor and broke A level student trying to do an A level in computer science.

Robin Clayton, Carlisle.

FINESSE
FINESSE

• You'll need to run a shareware utility before the Trigen PC will handle graphics applications like Finnesse.

We spoke to Ron Gladwin at UK Home computers and he confirmed our suspicions. The computer that you bought wasn't intended as a graphics machine (as you need for DTP programs like Finesse).The display standard for the monitor and display is MDA. However, all is not lost. UK Home Computers have access to a shareware program that should allow you to set up your machine to run a mono emulation of the CGA graphics mode. Give them a ring on 0793 695034.

Hard driver

I have a problem getting my printer to work with my A500.The printer is an Olivetti JP101 – what driver does it need? Olivetti cannot (won't) help me. It didn't come with a manual so I cannot even use a PD Driver Creator because I do not know the escape codes.

Andy Reeves, Rotherham.

According to Olivetti, the printer that you have supports the Epson standard so if you try installing the various Epson drivers in preferences (instructions on how to do this in the manual).

Try each of the Epson drivers (and any others that you fancy) until you get the one that gives the best result with your printer.

Free Gift

Following your notice in Issue 128 I enclose a small program that I have written and wish to place in the Public Domain. I enclose listings where appropriate and have included some comments on the program below. If you run the program you will note that I have

described the game as charitywarw. This means that whilst there is no obligation on anybody to do anything (as in true Public Domain), I have used the opportunity to advertise a very worthwhile local charity. If anyone feels that the game merits it I request a donation to my local RSPCA Animal Shelter.

The game is written in 6502 Assembly language using an assembler typed in from your 64 magazine in 1985. As the assembler can handle a maximum source code size of 29 K which results in an object code of around 4 K, the program is in the form of several small modules.

Richard Jones, Sheffield.

I've resisted the urge to print the entire listing as we wouldn't have enough pages in the magazine. However, we gratefully accept it for the Tech Tips proggy hole and look forward to seeing it up and running. Your charity donation idea is a fine and selfless gesture which I'm sure could benefit from a dose of organisation. May I suggest that you offer the program to a shareware library (The *Express* user groups section should help you to find one) with instructions that the shareware 'fee' should go to your choice of charity.

TIP! Laser patch

Unfortunately my tip regarding patching the Amiga Preferences HP LaserJet driver was printed wrongly in your magazine – one of the bytes was left out! Here are the bytes to look for and the changes to make as well as a detailed description of how to do so.

Original E5 80 D0 81
Patched E7 80 90 81

To do this using the Public Domain file editor NewZap load the driver by typing its full path name in the Filespec string gadget, eg, dh0:/devs/printers/hp_laserjet. in common with most other file editors NewZap displays two distinct window sections. The larger display depicts byte values in Hex while the smaller one displays corresponding ASCII characters, you can edit either by clicking the mouse within one of the sections and moving about with the cursor keys.

To get to sector 10 offset 15E, click on the upward pointing F arrow in the GOTO requestor and keep doing so until the Current Sector reads 10. Now click the left mouse button while the pointer is over the Hex editing window, Edit Mode should now read Hex. It only remains to locate offset 15E. This is located 11 lines down from the top, move the cursor there and press the right arrow key until the Cursor pos indicator (top right) reads 15E - the byte under the cursor should be E7. Simply type in the new values as indicated above and select the save gadget when you are certain you have it right (there is an undo feature which can be used before the save if you mistype).

Anonymous

Whoops, we seem to have got your tip right this time, but *Express*'s lightning typist overshot your name and address and left us without a clue to your true identity since we have also lost your original letter. Keep the tips coming thick and fast and we'll redress the balance.

Using TV tuners, videos, NICAM boxes and other TV related equipment with computers can be confusing when the TV detector van calls. Here's one letter to try and clear the muddy waters . . .

HELP Keeping in tune

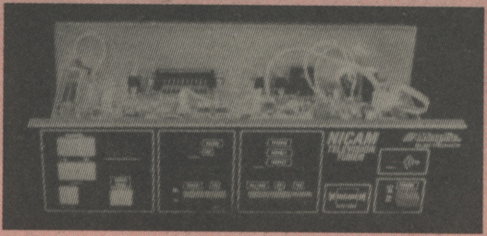
What is a TV receiver? For what it's worth, here is my opinion. My only qualification is some 40 years of radio as a hobby and licensed for about 25 years.

I would class any equipment as a TV for licence purposes as any equipment that is capable of receiving a TV signal and making use of the video content of that signal to provide a visible picture either at time of transmission or to store the video content for future use. I would class a single digitised frame of a TV picture as making use of the video content.

A colour licence I would consider needed if the equipment is capable of processing the video signal to provide RGB components and display these as a colour picture or store them for reproduction at a later date as a colour picture. Again I consider a digitised frame if displayed or stored as RGB is charged as a colour receiver. A tuner providing composite video and RGB if only connected to a black and white monitor or storing only a single b & w digitised frame could be possibly classed as a b&w receiver. However if a colour monitor is also available it could be difficult to prove.

M Perry, Kidderminster.

I'm not sure that you're correct, but you're heading in the right direction. No doubt the chaps at the TV licensing office in Bristol will have something to add to the debate.



• When is a TV not a TV? No one seems to know for sure ...

TIP! Memory saver

Here's a tip for Professional Page users (and indeed any other memory hungry packages). Redirect printer output before running the program, by double clicking on the CMD icon in the Utilities drawer in Workbench. If you have the memory to spare accept the default destination RAM: (look at tooltypes in the info screen) and print the file after leaving Pro Page by copying the file to the PAR:device ie

```
copy <filename> par:
```

This lets you carry on working in Pro Page much quicker, doesn't hog valuable memory (Pro Page seems to require a lot of memory to print a file, if memory is a problem redirect print file to disk by changing defaults in tooltypes), and just about allows you to use another package while the file is printed in the background at a later stage. This note was written in Protext while printing a half Mb file produced in Pro Page. Print time was just over four minutes in total (approx two mins in Pro Page and 2.5 mins from the CLI) on an Epson GQ5000 laser at 300dpi.

Ian Moran, Belfast.

At the risk of an almighty groan: "Thanks for the memory ..."

HELP Soldering on

Just a couple of questions that I would find most helpful if answered in your coloumn.

1) With regards to the advice offered in Circuit City (issue 130) about connecting the Amstrad monitor to the Amiga/ST. Does the advice refer to the colour monitor or the green screen? If it's colour what should be done with the 5V DC power cable?

2) Is there any way that an external cassette recorder can be connected to the CPC 464. I have tried unsuccessfully to solder an output and input jack to the circuit board connections or play and record head. Any help?

Matt, Milton Keynes.

1) It was the colour monitor and we did nothing with the DC power cable in case we wanted to use the monitor with a CPC again
2) No. It's a daft idea and you shouldn't have attempted it anyway. If the CPC tape is pooped, CPC Components in Preston should be able to supply replacement parts.

HELP Null modem

At home we have an Amiga 500 and our next door neighbour has an Atari ST. We both perform various offices in local committees and clubs and help each other with typing and cataloguing.

About a year ago, we both bought a modem and comms software and used the serial port and our wonderful system X exchange to pass files across. commitees and clubs have become busier and we can now spend up to two hours a day online.

Both machines stay on-line all the time and we've even installed dedicated phone lines and host software so that we can operate each other's machines remotely.

My son pointed out that as both machines were in rooms backing on to each other (we both live in a pair of semis), maybe we could drill the wall or run a cable through the window frame and connect the modems back to back. This way we will cut down on the phone bills (and perhaps pay for the holes we have to have drilled by a tradesman.

Bill Saddler, Newcastle upon Tyne.

Your son is quite right when he reckons that you can save money with a direct link. You could be in for a greater saving than you think though.

The purpose of a modem is to MODulate and DEModulate the digital signals from the serial port into an audio signal that Telecom's lines can carry. (That's how it got the name modem).

For short distances by direct wire, the modems can be done away with and a simple cable can connect the machines through the wall. The cable that does this job is known as a null modem cable and can be purchased from most computer retailers for a few pounds. Assuming that you intend to keep the hole in the wall down to a minimum size, it will probably be a good idea to get the cable with its connector on one end only, pass it through the wall and then solder on the other connector.■

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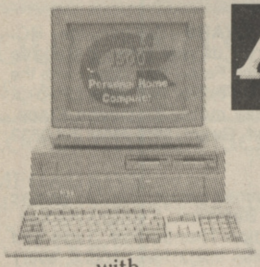
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ORIC user group - third meeting in Aylesbury, Sat July 13. Send SAE or phone evenings. Contact: Dave Dick, 65 Barnard Cr, Aylesbury, Bucks, HP21 9PW. Tel: 0296 26050.

WANTED, large composite monitor (colour) in good working order. (Gameboy), Spectrum, C64, Amstrad, games wanted, tape or disk, cartridge. 31/2 blanks wanted, around 30p each. Phone Steve (0628) 72275, 6pm +

ARCHIMEDES A3000 owners watch the skies. The Zelanties are coming! Prepare for the onslaught.

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MAKE YOUR CODE FRIENDLY

Whatever you're programming, whatever language you're using, it is going to be hard work. Mary Branscombe looks how you can make the going easier as you write your code.

As you write programs, you will find that you have to do the same things over and over again. There will be some routines that you will have to write for every program, to read information from the user or print results to the screen; the routines do the same job, but the format is slightly different each time. The easiest way to deal with this is to adapt code from a previous program. If you've never written a program before, you'll find more than enough examples in any programming text book or manual.

There are other routines - for sorting data into alphabetical or numerical order for example - that you will need to use again and again. Rather than searching through old programs for the code you want, you should keep useful routines in a library. You can copy the code out when you need it, or include a reference to the library file in your main program.

A VISIT TO THE LIBRARY

Do remember to document library routines well. You might want to give them to another programmer, or update them some time in the future. Just because you've included a routine from your library in a lot of programs doesn't mean that you're going to remember how it works.

Once you've started to keep a library, you may well find that you start to think about re-using code when you first start to write it. This is all to your advantage – if you've done the work once, there's no point in doing it again later.

- **You can make it easier** to use your code somewhere else by making it easier to change the things that are specific to the first program.

If you were planning some code to calculate the average of ten numbers the pseudocode might look something like this:

```
average([ArrayOfNumbers],Average)
    add_up([ArrayOfNumbers], Total)
    Average = Total/10
```

If you wanted to use this later to get the average of five numbers, you would have to rewrite the code. Not only does this take up time, it makes your program that little bit longer. Do that sort of thing a lot and your program will get very large. Re-usable code may be a little longer, but you only include it once.

If you tell the routine how many numbers there are, you can re-use it straight away:

```
average([ArrayOfNumbers],HowMany,Average)
    add_up([ArrayOfNumbers], Total)
    Average = Total/HowMany
```

To make the routine even more portable, so that you can use it with different groups of numbers, let the routine work out how may numbers there are:

```
age([ArrayOfNumbers],Average)
    add_up([ArrayOfNumbers], Total)
    length([ArrayOfNumbers], Length),
    Average = Total/Length
```

This last routine is not only easier to re-use, it is also more robust. If an array of nine or eleven numbers was passed into the routine for some reason, the first two versions of the program would calculate an inaccurate result. The final version can cope quite happily.

If you need to know how many numbers there are somewhere else in the program, you could use the information from this routine, rather than working it out somewhere else as well. You should never make the program do the same work twice if you can help it and it is worth planning the program carefully to make sure that the information retrieved in one place is re-used when it is needed.

> **Once you start to keep a library you start to think about re-using code – if you've done work once, there's no point in doing it again**

- **Constants are easy to change.** If you have any programs that work out VAT, then you will have had to change them to keep up with the budget. That may not take long for a simple calculator, but think about changing the VAT figure in a set of accounting programs. If you set up a constant called VAT at the beginning of the program, it would be very simple to change the figure from 15 per cent to 17.5 per cent. Good code is easy to update as well as alter.

LOOK IT UP

If you are working on a project with a number of people, it is a good idea to keep a central library. Feel free to use your cherished routines rather than anyone else's – but take a look through what the others put in. You might be able to use some of the code in your sections of the program.

PSEUDOCODE

When you plan a program, you are more likely to write "read in some data" than to write out the full command in the language you are using. If you plan in general terms, you can write the code in almost any language you like later.

The code fragments are in pseudocode since we don't know what language you are using. Pseudocode is similar to many programming languages, but not restricted to the syntax of a single language.

Check out what is in any libraries supplied with your programming language as well. The standard library supplied with ANSI C includes utilities for handling memory, mathematical functions, pseudo-random number generators and functions for searching and sorting, as well as the more familiar input and output functions. Any decent object-oriented programming language will come with an extensive class library for you to use.

Even if you haven't written a program that deals with a similar problem before, someone else may have. There are many commercial libraries on the market, especially for older languages like Fortran. Even if you decide you don't want to re-use the code, it can still give you some ideas. ■

PLANNING

It's worth spending a little more time planning code that you can use 10 times rather than just once, but you should follow the same rules for planning any program.

- **Make sure you understand the problem and know what you want the program to do.**
- **Find out all the data you can give the program as input.**
- **Decide what information you want the program to output.**
- **Write down what the problem is and what it involves – this is essential if you are working with anyone else.**
- **Decide on the main steps of the program – the algorithm.**
- **Write down how you intend to tackle the program.**
- **Work through your solution again - just to make sure.**

You can divide any program up into different sections. The smaller the sections, the easier they will be to write and more likely it is that you can use the code again.

WANTED – YOUR CO-OPERATION

Whether you use other people's libraries or write libraries for other people – write to us: Programming, New Computer Express, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW

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At Kensington Town Hall Exhibition Centre, London. Info: 0256 83583.

OIS IMC '91 2-4 July
The document image processing conference at the Wembley Conference and Exhibition Centre, London. Info: 071-931 9985.

PC World Forum 9-14 July
In Moscow. Info from Terence Coe on 010 1 508 820 8122.

The International 16 Bit Computer Show 12 July
At the Novotel Hotel, Hammersmith, London. Info on: 0726 68020.

Computer Animation Competition and Exhibition 21-28 August
Animation is enjoying a considerable amount of popularity, with affordable computers now offering graphics display capabilities previously available only to the professionals. The arrival of some exceptional software has meant that many gifted amateurs are able to create stunning, innovative sequences at minimal cost. A random sample of PD demos will reveal the quality of this work.

The Computer Animation Competition is organised by the Amiga Centre Scotland and is open to Amiga users the world over. The winners' entries will be displayed in the exhibition at the ACS which is part of the Edinburgh Festival, open to the public.

As well as public acclaim, winners will receive prizes of hardware and software from the sponsoring companies.

Entries must be on an Amiga disk or PAL video tape. Closing date is 31 July. Contact Fiona Shiva on 031 557 4242.

Leeds Computer Extravaganza 13-15 Sept
At the New Exhibition Centre at Leeds University. Info: 0532 677 657.

Business Communications Awards 10 October
The fifth competition of its kind, organised by BT in conjunction with The Sunday Times. The awards will be presented at a dinner at the Savoy Hotel, London. Prizes go to those companies able to demonstrate the most effective use of telecommunications.

The closing date for entries is 15 July. Entry forms can be obtained by calling BT on 0800 800 847.

Image Processing '91 29-31 Oct
At the Birmingham NEC. Info: 081 868 9933.

Computer Graphics '91 5-7 Nov
At the Alexandra Place in London. Info: 081 868 9933.

Desktop Cad '91 5-7 Nov
As above

Computers in the City 12-14 Nov
At the Barbican Centre in London. Info: 081 868 4466. ■

The Insider ...

A regular look at an industry which is attempting to 'find itself' in terms of a caring yet strong, warm yet unwimpy personality.

The Insider has had a fine week poking about the computer industry in search of scurrilous gossip and dirty dealings. If you have snips, or snaps, which you think should be aired to the public, the n send them to: The Insider, *New Computer Express*, 30 Monmouth Street, Bath BA1 2BW. Anonymity is assured, as is a fiver for anything used.

PRODUCT KNOWLEDGE NIL

Sega has long been trying to find a character who will compete in the world arena with Nintendo's *Super Mario Bros.* This year it feels that it has cracked it, if you will excuse the pun, with *Sonic the Hedgehog*. This spikey, cute little chap is being hyped nearly as much as that ninja-kicking star of field and hospital bed, Gazza. Anyway, at the plush press briefing to announce Sonic to the world, leading PR company Lynn Franks put one of its star chaps on stage in order to extol the virtures of the hog. He proudly announced that "The *Sonic Hedgehog*" had arrived. Lyn Franks currently represents Henny Lenry, Cherry Nehna, and Paul John Ringo Gaultier. Nice one!

THE CPC IS UNWELL

What is this the Insider hears about certain words out of turn at the recent All Formats' Fair in Birmingham? It appears that a certain Amstrad's Roland Perry (the name behind RPED.BAS) mentioned in passing that the dear old CPC was due for a drop in price. Our sources also tell us (and whether this is based on fact is open to question) that out of 100,000 6128s made only 20,000 had been sold. Whoops! Does this mean the we are soon to CPC the death of the machine which made Amstrad so loved in the world of home computers?

OUR SOUR GRAPES

It appears that Mirrorsoft is not pleased with *Express*' own Tim Smith. In a recent review, the crude and thuggish young hack gave a mere 65 per cent to one of Mirrorsoft's games (*The Clodding KIll* or something like that).

Mirrorsoft's PR lady and washing machine expert, Cathy Campos, felt that she had to write and complain about the outrageous situation. After all, how could a game from the people who brought us *Teenage Mutant Hero Turtles,* get anything less than 100 per cent? Slapped wrists all round.

THE JOKE IS ON THEM

Overheard at Comdex in Chicago: How do you get 400 PC developers in a phone booth? Put Bill Gates in there and they will all crawl up his . . . (*that is quite enough of that for now*). See you soon!

Golden Moments

A look back into the history of computing with *Express.* If it happened we reported it first.

ONE YEAR AGO

- Playing video games could only be the last request of the most die-hard games' fan. But this is precisely how Leonard Laws, convicted murderer, spent his last hours on Death Row before seeing his last 'Game Over' message.
- In an effort to solve the riddle of the Sphinx, or a least of why it insists on eroding away, scientists placed a computerised weather centre on its back. Working on solar power, the centre sent data on rainfall, wind, humidity and pollutants to a remote host computer. The information was to be used in developing a way of saving the Sphinx from further decay.
- Only five weeks after its launch in Japan, the Neo-Geo console was beginning to make unnofficial appearances in UK shops.

The machine offered an impressive specification (it doesn't look too bad today): high resolution graphics, 4096 colours at once and 68000 and Z80 processors working in tandem. Despite its early start, the Neo-Geo doesn't seem to have quite taken off. This could be due to its price - initially £400 for the machine and £200 for each game cartridge.

TWO YEARS AGO

- Cruelty-free computing became reality with a system developed at Manchester University. Called the BioEngine, the system could mathematically predict the interactions of molecules with various drugs, so avoiding the need for animal testing.
- Nine hardware manufacturers accounted for half of the world's personal computer sales, it was revealed in a chart published by IDC.

Only single user machines were included, but nevertheless IBM came out with the largest share at 11.5%. Surprisingly, Commodore came second, with 10.7%, but this was accounted for more by the popularity of the C64 rather than Amiga sales.

EXPRESS ON-LINE

The Express guide to computing at the grass roots level this week featuring User Groups from H to W.

EXPRESS IS NOW ON-LINE.!!!!
JOIN THE EXPRESS CONFERENCE ON CIX (081 399 5252)

NEW ARRIVALS ON-LINE

BULLETIN BOARDS

GREAT NEW AMIGA BBS – Something for everybody, on-line help with all aspects of the Amiga from workbench to genlocking. All the latest stuff. Any PD software requests taken! HST. 0908 672240.

MAXIMUM – Baud 2400. 24 hours. Sysop normally always around. Upgrades when cash is available. So call now!!!(0905)429595.

HAWK'S REALM BBS – Based on an Amiga 500 running 4-DBBS. Amiga only (others on request) 300-2400 baud. 24 hours. Telephone 081 863 8751.

FULL FRONTAL BBS – Catering for all Amiga users with extensive full areas covering the best in Amiga PD including utilities, music, demos, games and adult – and a file request service!! Run by Amiga enthusiasts for Amiga enthusiasts. No subscription, immediate access to all areas. Speeds 1200 and upwards to HST. Call Steve Arnold (day) 0908 661966 (evening) 672240.

THE SCHIZOPHRENIC WOLF BBS – (0772) 456526 V21, V22, V22 bis. Specialists in Beatles and Led Zeppelin music. Many original samples. PC and Amiga file areas. Machine knitting news mail area.

MOVIE BBS – 0703 650037. 24 hours a day. V21/V22/V22bis Speedmodem compatible. Celebrity gifts, episode guides plus huge adult section. Part of Steve and Jackie's BBS

STYLE QBBS – based board with areas for Amiga and PC users. Full Fidonet/Netmail available. On-line now 24 hours. Tel 0442 381164, 8N1. Speed 300 – 14.4K (HST)

CLIP ART (PD) – Send disk and SAE or £1 to Clip Art (PD), 8 College Road Blandford Camp, Blandford Forum, Dorset, DT11 8BE, for catalogue and examples.

GAMES DOMAIN PD – Amiga Computer Games only. £1 each including postage and packing send stamped addressed envelope to 22 Broadwater Crescent, Stevenage, Herts, SG2 8EQ.

ATARI 1 SHAREWARE – From performance PD, Helenville School Road, Coldineham, Berkshire, TD14 5NS. All shareware £2.99 each. Two hundred for sale.

AMIGA PD CLUB SWAP – Free PD for Amiga Plus 'swops', hundreds of titles and UTILS. Join free. Send blank disk or 50p for catalogue to: Frank Armstrong, Glenwood House, St Mary's Road, Eccles, M30 0BA.

CLUB AMIGA – 24 hour telephone helpline, newsletters, cheap PD contacts service etc: Send SAE for more info: Club-Amiga, 5 Bowes Lea, Shiney Row, Tyne and Wear.

PRESTIGE AMIGA GAMES (UK) – Amiga Games for sale or exchange. Large PD Library. Send SAE for full list to K Harvey, 67 Waverly Road, South Benfleet, Essex SS7 4AX.

TRIPLE X – We are the only PD Library dedicated to ST Adult Software! £2 per disk. Write for your free catalogue, also other software available! Triple X, Babak Ghaxi, 3 Lansdowne, Carlton Drive, Putney, London SW15 2BY.

MG SOFTWARE – £2 per disk of Atari ST Public Domain. Send me 95p for-my catalogue of great stuff. Mark, MG Software, Connerways, Beckingham Street, Tolleshut Masor, Essex M9 8LL.

PRIVATE COLLECTOR – Atari STE Public Domain. Over 300 titles. Send blank disk (or 50p) and SAE for list to: N Rodel, 72 Lancelot Avenue, Stroud, Kent.

AMIGA PD – Only 75p per disk. Update catalogue sent every three months. Personal service guaranteed. Includes helpline for basic programmers. Access to software and exchange. Shieldsoft PD, M Daniels, 13 Churton Road, Rhyl, Clwyd, LL18 3NB.

LAZER PD – 100 Amiga PD disks, 95p each. For catalogue/disk sent 95p (cheques/PO's payable to J Deavall) to: 57 Adamthwaite Drive, Blythe Bridge ST11 9HL.

FANZINES

MCB – The great new fanzine dedicated to owners of the truly wonderful PC. 10p plus SAE to: OFFSHOOT Publications, 8 St John Street, Coleford, Glos. GL16 8AR

CONSOLE MAGAZINE – The magazine for game consoles. Send large SAE for free sample copy to 125 Arnold Road, Bestwood, Nottingham NG5 5HR.

USER GROUPS

PUBLIC ADVERTISING LIBRARY – For Speccy owners. Two free C90 tapes when you join, as long as you send an adventure game original. We have some adventures available but we want more. For more info send an SAE now. to Alec Carswell (PAL), 16 Montgommery Avenue, Beith, Ayrshire, Scotland, KA15 1EL

POSTSCRIPT USERS GROUP – JP McKeown, 3 Pedn Moran, St Mawes, Cornwall TR2 5BA.

NORTHERN IRELAND AMIGA USERS – Send £2 for disk-based newsletter. Tips, news, reviews etc. NIAU, 98 Crebilly Road, Ballymena, County Antrim BT42 4DS.

ST USER GROUP – Send an SAE for a news letter to ST User Group, Ben Dobson, 1 Ryedale Way, Selby, North Yorkshire YUO8 9PB.

CLUB M – Monochrome ST user group needs members. Dedication, enthusiasm and a sense of humour are the only membership fees. Small ever expanding PD Library. Write to CLUB M, 59 Maple House, Idonia Street, London SE8 4LT.

Let the world know

Do you run a user group or bulletin board? Are you organising any event? Do you publishing a fanzine? Let the world know about it through *Shopping Express*. Fill in this form and send it to us at: 30 Monmouth Street, Bath BA1 2BW.

(Tick as applicable) ☐ Group ☐ BBS ☐ Event ☐ Fanzine ☐ PD Library ☐ Virus Warnings/Bugs

Name of the above ....

Your name ....

Address: ....

....

- Write your ad in block capitals on the grid below using one word per box.
- Also, please let us know if any of the information on these pages is out of date.

USER GROUPS H TO W

HOUSING ASSOCIATIONS - Caroline Maries, Micro Users Ltd, Beaver Housing society, 23 Lewisham High Street, London SE13. Tel 081-318 1126

HEALTH WORKERS - Sue Mckendrick, Healthlink, 164 Windsor Rd, Ashton-in-Makerfield, Wigan WN4 9ES. Voice: 0942 712 385

IBM PC USER GROUP – PO BOX 360 Harrow HA1 4LQ.081-863 1191 BBS 081-863 6646

INERTIA ADVENTURES – A ray of light in the dark cavern of the text adventure. Do you dare to enter this saga? Proceed by phoning 0265 51851 for details.

JOMAC USER GROUP – Spectrum and Amiga tips and pokes sent every month. Write with SAE to Jomac's, Filey Grove, Rhodes Street, Hull

JUPITER ACE – John Charter, Jupiter Ace Forth User Group, 17 Spring Wood Close, Dunston, Chesterfield S41 8BS. Tel 0246 237555

LOCAL AUTHORITIES – Local Authority Micro User Group, John New, Borough Engineer's Dept, Municipal Offices, North Quay, Weymouth, Dorset DT4 8TA.. Tel 0305 785101 ext 272

LOTUS PRODUCTS - Lotus User Group, 79-80 Peascod St, Windsor, Berks SL4 1DH. Telephone 0753 841686

LYNX – R B Jones, Lynx User Group, 39 Ashton Close, Needingworth, St Ives, Cambs

LYNX DISK USER GROUP – J Koushappas. 172 Pasteur Gdns, London N18. Tel: 081 807 3859

MAC SOFT – six games for the Amstrad CPC6128. Send SAE, blank disk and 50p copy charge to Macsoft, 2 South Meade, Maghull, Liverpool, L31 8EF.

MAGNETIC MEDIA HANDLE WITH CARE – Amiga disk fanzine with news, reviews, music, games, utilities, userhelp. At least two disks per month. Each issue £2.80. Write to Magnetic Media HWC, 25 Rigbourne Hill, Beccles, Suffolk NR34 9JC.

MEGADRIVE CONSOLE CLUB – Used and new games sold, also exchange system and games brought from £6-£22. Write to Andrew Stanford, MCC, 15 Fields Park Drive, Alcester, Warwicks, B49 6QR or Tel: 0789 764039 after 4pm

MEMOTECH FILE – 93b StJohns Road, Biddulph, Staffs ST8 6LL

MEMOTECH - Phil Eyres - Memotech Owners Club, 23 Denmead Road, Harefield, Southampton SO2 5GS. Tel 0703 585106

8LL.MICROSOFT WORD - Lesley Port, Folly House, Madeira Walk, Bachelors Acre, Windsor, Berks. Tel 0753 831001

MICRO-DESIGN USER GROUP – a new group for those PCW owners requiring assitance and advice with this DTP package. Large clip art library available. Phone Phil on 0709 543390

MID CORNWALL COMPUTER CO-OP – Atari ST. 8 Victoria road, Roche, St Austel, Cornwall PL 26 8JF. Telephone 0726 890473

MIDI/MUSIC – Spectrum music machine/MIDI user group. Magazine on tape, plus programs and lots more. For more details contact Sean Sanderson on 05242 62258

MOTOROLA 68xxx MICROS – write to Rick Applegate, 68 Microgroup, 8 Great Cob, Springfield, Chelmsford, Essex. BBS tel 081-316 7402

MSX SYSTEMS – write to Keith Neal, MSX Link, Austerby House, 80 Austerby, Bourne, Linconshire PE10 9JL

NASCOM/80-BUS/CPM - Scorpio Systems, PO BOX 286, Aylesbury, Bucks HP22 6PU.Tel 0296 624868

NEW BUG COMPUTER CLUB – Support for all machines. Metts weekly at Oxclose Multi-Purpose Centre in Washington each Tuesday at 7pm. All welcome, visitors 50p

NEWBRAIN - Ron Bury, NewBrain Support Grp, 70 Cranberry Lane, Darwen, Lancs BB3 2HL. Tel 0254 771891

NIMBUG – write to 13 Belle Vue Ave, Gosforth, Newcastle-upon-Tyne NE3 1AH. Tel 091-285 7806

NINTENDO GAMEBOY – I would like to start a user group for the Game Boy. Write to Justin Spencer, 2 Rose Villas, Thurnholmes Farm, Owston Ferry, Near Doncaster DN9 1BE or Tel 042772588

NW ARCHIMEDES USER GROUP – Meets every Friday at Citizens Advice Bureau, next to Spectrum arena in Birchwood, Warrington. Ring Paul on 051-426 3915 after 6pm

OBSOLETE COMPUTER CLUB – Established 1990 to preserve and support Pre 1986 micros. Applicaions in writing to Mr S Walters, 42 Achilles Road, London NW6 1EA stating system details, date and history. All systems, micros and minis.

OLIVETTI PC1/PCS USER GROUP – Help with all aspects of these machines. Tel 0924 892106 or write to 68 Queen Elizabeth Drive, Normanton, W Yorks

OS/2 - Karen Burns, OS/2 User Group,Cecily Hill Castle, Cirencester, Glos LG7 2EF. Tel 0285 655888

OSBORNE/CPM/MSDOS – write to Jeremy Browne BOOG, 102a Aldershot Road, Fleet, Hants GU13 9NY. Tel 0252 621745 voice or 626233 BB

PAGESTREAM USERS GROUP – all Atari/Amiga owners of *Pagestream* send large SAE to PUG, 70 Offerton Lane, Stockport, SK2 5BS. Include all your tips please.

PAS PD for the ST. Send 75p for the latest details and disk catalogue (refundable). Write to PAS, 97 Holland Street, Ebbw Vale, Gwent NP3 6HY.

PC INDEPENDENT USER CLUB – Helpline service, bi-monthly journal, shareware/PD, local meetings, bulletin board, £29-£50 pa (£36 businesses, £19 students) Free 30 day trial 0732 771512.

PHILOSOPHY APPLE - G Haines, Chinese Room Club, 43 Cornwallis Gdns, Hastings, East Sussex TN34 1LX. Tel 0424 714 102

PICK OPERATING SYSTEM - Hugh Kellt, UK Pick Users Assocn, PO BOX 907, London N10 2SB. 081-462 4666

PRESTEL - Andy Leeder, ClubSpot 810, Church Farm, Stratton St Michael, Norwich, Norfolk, NRQ15 2QB

PSION ORGANISER - Mike O'Regan, IPSO, 130 Stapleford Ln, Beeston, Nottingham NG9 6GB. Tel 0602 735482

PUC'S ATARI PORTFOLIO USER GROUP – New user group for the Portfolio pocket PC/organiser. Offers: newsletters, technical assistance, Talkback feature, software/hardware updates and hot news. Tel 0635 73662.

QUANTA, QL AND THOR USER GROUP – The Corner House, Loxley, Warwick, CV35 9JT. Tel: 0789 842543

RESEARCH MACHINES - Steve Rochford RM National User Group, George Stephenson High School, Southgate, Killingworth, Newcastle NE12 0SA. Tel 091-268 2002

REVELATION (PICK) — write to Malcolm Frame, UK Revelation User Group, 136 Saint Albans Road, Watford WD2 4AE or Telephone 0923 35515

R:BASE – write to Mrs Tansy Beal, R:Base User Group c/o Room A2044 BBC Woodlands, 80 Woods Lane, London W12 0TT. Telephone 081-576 7187

SA40 User group – write to Roy Williams, 17 Grove Road, Acton, London W5 6AW.

SANYO MBC-550 - M H Syed, Wistaria, 53 Acacia Grove, New Malden, Surrey KT3 3BP. Tel 081-942 9009

SCHNEIDER EURO PC - Alex Kefford, SEPUG, 11 Crabbet Road, Three Bridges, Crawley, West Susex RH10 1NF

SCIENTIFIC PC USERS – write to Tim Bunning, SPCUG PO BOX 17, Retford, Notts DN22 6BQ Tel 0777 709009

SEGA SWAP CLUB – Exchange your old megadrive games with other members. For details send SAE to SSC, 10 Sandwith Road, Todwill, Sheffield, S31 0JP

SERIOUS GAMER – Flat C, 43 Colvestone Crescent, London E8 2LG. Telephone 071 241 5446.

SERVICES USERS - write to Squadron Leader G Howson, Services Personal Computer Association, Stlk Eng 15a HQSTC RAF High Wycombe, Buckinghamshire

SHAREWARE SWAPSHOP – 400 plus PC shareware disks available free. Semnd Blank disk (3.5 or 5.25) and return postage for a copy of our catalogue to The SSS, 69 Tillingbourne Green, St Mary Cray, Oropington, Kent, BR5 2EX

SHARP USERS CLUB – contact Andrew Ferguson, 11 Harcourt Close, Henley-on-Thames, Oxon RG9 1UZ. Tel 0491 574850 evenings only

SHREWSBURY AMIGA USER GROUP – 1 Haughmond Court, Featherbed Lane, Harlescott, Shrewsbury, SY1 4NJ. Please enclose an SAE

SIRIUS – Simon Sheppard, ISSUE PO BOX 222, Brighton BN1 3BR

SHAREWARE KING – quality PC shareware. Over 3000 disks.Send SAE plus disks for catalogue to C Smith, 10 Penwood Close, Westbury, Wilts, BA13 3LW. Tel 0703 865263

SHREWSBURY AMIGA USER GROUP – informal meetings and lots more planned. Write with SAE to A Preece, 1 Haughmond Court, Featherbed Lane, Harlescott, Shrewsbury, SY1 4NJ.

SOFTWARE EXCHANGE – send an SAE for info to 13 Bourneville Lane, Birmingham, B30 2JY or phone 0860 444594 from12pm to 10pm

SOFTWARE EXCHANGE SERVICE – buy/sell/swap Amiga, ST and PC. SAE for info to 13 Bournville Lane, Birmingham B30 2JY or call 0860 444594.

SOLITUDE MOUNTAIN – Friendly new Amiga user group. Send blank disk or 50p to 565 Heathway, Dagenham, Essex

SORD M-23 – B Nicholson, Schlumberger Norge A/S Bjergstedveien, 4007 Stavanger, Norway. 474 657002

SMART SYSTEMS USERS – write to Francis Barton, Basement Holy Rosary church, Louis Street, Chapeltown, Leeds LS7 4BP. Tel 0532 629202

SOFTWARE EXCHANGE SERVICE – for info send SAE to 13 Bourneville Lane, Birmingham, B30 2JY. New telephone number: 021 459 7576. Buy/swap/sell.

SOUTH 16 AMIGA USER GROUP – the UK's number one Amiga user group. For more information send SAE to South 16, PO box 16, Southampton, S09 7AU. Now!

SOUTHERN AND DISTRICT. PC and ST user group.Tony Lowes 61A Broadway West, Leigh on Sea, Essex S59 2BX

SPANDEFANG SOFTWARE – 68000 AC Coders magazine. Send £2 for sample to 4 Cambridge Terrace, Harrogate, North Yorshire, MG1 1PN. Atari, ST, IBM PC. 3.5 inch disk included in price.

SPECTRUM PLUS 3 USER GROUP – monthly magazine. 57 Lovers Walk, Dunstable, Bedfordshire, LU5 4BG

SPECTRUM DISCOVERY CLUB – magazine on disk for the Opus Discovery Disk Drive and the Sam Coupé. BD Mumford, 57 St Saviours Road, West Croydon, Surrey, CRO 2XE

STEN – the ST enthusiasts newsletter issue three now ready. Send a disk and SAE for your copy now. Postal Trivia League starting. Interested? Write to 14 School Road, Morningside, Newmains.

STOS magazine, out every month.Send an SAE for full details to 11 Shore Crescent, Bishops, Waltham, Hants SO3 1DZ

(Continued on the next page).

SPOTLIGHT ON
Z88 EPROM

This user group with a name that sounds more like a microchip than a gathering of enthusiasts is dedicated to the users of Sinclair's portable computer, the Z88.

It's easy to forget how popular the Z88 is but travel a few miles on the train and you'll see this rubber-keyed marvel being used by everyone from a businessman to a student. It's A4 size and convenient in built software make it a popular computer for those on the move. However its niche market attraction means that any support must come from a strong user group. Z88 Eprom publishes an informative A5 magazine packed with mail, helplines, diaries; reviews, hints and tips for every Z88 owner . How do you get in touch with these folk? contact Roy Woodward, Z88 Users Club, 68 Wellington Street, Long Eaton, Nottingham, NG10 4NG.

SHOPPING EXPRESS BUYERS' GUIDE

While *Shopping Express* is undoubtedly the perfect way to track down the best bargains in the computer world, many people are still wary of buying products via mail order or through personal ads. This is probably because usually you are not able to have a look at what you are purchasing before you hand over your money.

We do everything in our power at this end to make sure that all the advertisements we run are above board. But here are a few tips designed to help take the risk out of buying via mail order or over the telephone.

- **Be precise in describing what you want to buy. Leave no room for error. Feel free to go overboard in double checking details – make, model, specifications, colour, size, the page number and name of the magazine in which you saw the advertisement etc.**
- **Confirm the exact price of the article you are buying. If you are phoning a company check if there are any hidden extras, such as postage and packaging.**
- **Check how the item will be delivered to you and how long it should take. This is especially important with reader ads where delivery details are rarely mentioned.**
- **If you are writing off for the product keep copies of all letters. If you are phoning, note down details of when you phoned and who you spoke to.**
- **If possible enquire about guarantees and servicing. Check the supplier's policy on returns and refunds. With reader ads, it is best to make the effort to see the item personally before you hand over money.**
- **When dealing with companies it is best to to pay by credit card, especially for items over £100, as this provides extra cover under the credit card companies' own insurance schemes. Otherwise use a crossed cheque or postal order. Avoid sending cash at all costs.**

STOURBRIDGE ATARI USERS' GROUP – for 8-bit Atari computers.Send SAE to LK Taylor, 99 Bredon Road, Stourbridge, West Midlands, DY8 4LA. Telephone 0384 379575

STUPID FLOWER PD – new library for ST users. Send an SAE for a free catalogue to SFPD, 3 Read Mead, Glastonbury, Somerset Ba6 8ON or call 0458 35027 and ask for Matt.

SUPERPROJECT - Geoff Groom, 3 Sunnymeade Ave, Carshalton Beeches, Surrey, SM5 4JA.. Tel 081-643 3336

SYNCROSOFT – Exclusive 64 computer information. £2.95 to join, including p&p. Make cheques to Syncrosoft and send them to 9-10 Morland Gdns, Southall, Middx UB1 3DY

SYRACUSE ARCHIMEDES DISK MAGAZINE out now only £4.99. Includes the magazine disk plus two disks of public domain software. Send to Aste Wythenee House, 10 Alastair Crescent, Prenton, Wirral, L43 0UR.

TAS (DATABASE) - Neil Hegarty, TASUG C/O Solutions for You, 1st Floor, 2 Lytton Rd, New Barnet, Hertsm EN5 5BY. Tel 081-441 1133, BBS 081-449 4171

TCS PD – over 250 disks. Only 99p. Send SAE to 40 Upton Gardens, Tarring, West Worthing, Sussex.

TANDY/MS-DOS - Roger Storrs, NATGUG Oakfield Ldge, Ram Hill, Coalpit Heath, Bristol BS12 2TY. Telephone 0454 772 920

TELECOMMS USERS GROUP – Interested in forming a Business Users Telecomms Club? If so then contact John Lever, Systems Services, Little Thatches, Rushden, Nr Buntingford, Herts, SG9 0SH. Tel 076 388393

TEXAS T199/4a - Peter Brooks, International TI User Group 96 Banbury road, Oxford OX2 6JT. Telephone 0865 510822.

THUNDERNEWS – CBM 64 user magazine on disk/tape. Send sae for details and competition to 159 Hough Road, Wallsall, West Midlands WS2 9BG

TIUGUK – TI99/4A user group UK for S/W on disk, tape and module. Offers magazine and help. Write with SAE for more details to Peter Walker, 24 Bacons Drive, Cuffley, Potters Bar, Herts EN6

TRANSPUTER - Howard Oakley, Transputer User Group, Brooklands Lodge, Park View Close, Wroxall, Ventnor, Isle of Wight

TURBO – SAM Coupé user group. Six newsletters and six magazines each year plus a big PD library. £10 for a year. SAE for Information to TURBO, 8 Healet, Lakeside, Tamworth, Staffs, B77 2RF. Established January 1990.

TYPECAST PDL – Atari ST/STE PD. Solely for DTP, WP, Art, clip art, no games. Send disk and SAE for disk catalogue to 31 Hartfield Crescent, West Wickham, Kent.

UNIX USERS – UKUUG Secretariat Owles Hall, Buntingford, Herts, SG9 9PL. Tel 0763 73039 /73255 (fax)

VENTURA PUBLISHING - VPU (Ventura Publisher User group) Linda Liddell VPU c/o LLA Lound House, Forncett St Mary, Norfolk, NR16 1JP. Tel 0508 41580

WAKEFILED AND DISTRICT AMIGA USERS – interested in forming a local Amiga users' group? Contact Eddy on 0924 361101.

WHITE HEAD PDL – Atari ST PD from £1.40 per disk. Send two second class stamps for latest list to Hakan Akbas, White Head PDL, 15 Cavendish Mansions, Clapton Square, London E5.

WORDPERFECT – Michael Norman, Wordperfect User Group (UK) Dove Barn, Manor Farm, Wootton Woodstock, Oxon, OX7 1DX. Tel 0993 812 670

WORDPERFECT – Dr Ian Barton, A Perfect World, High Rigg, Alma Rd, Tideswell, Derbys SK17 8LS. Tel 0298 871 925

JUNE AUCTIONS ROUND-UP

MANCHESTER

COMPUTER CONNECTIONS
(0254 813316)
18 JUNE- Bowlers Leisure Complex, Trafford Park, Manchester. Sale starts 10am, viewing and testing from 8-00am.

MIDLANDS

TRADERDESK (0527 579120)
29 JUNE-National Motorcycle Museum, NEC, Birmingham. Auction starts at 11am, viewing from 9-30am.

SOUTH EAST

TRADERDESK (0527) 579120
15 JUNE-Harrow Leisure Centre, Harrow, Middlesex. Auction starts 11am, viewing and testing from 9-30am.

MCD (0932 788600)
8 JUNE-St Pauls School, The Ridings, Green Street, Sunbury-On-Thames. Auction starts at 10-30am. Viewing and testing on the evening beforehand from 5pm-8pm and on the day from 9am.

TECHNOLOGY COMPUTER SERVICES.
(081 651 3639)
1 JUNE Kemnal Manor School, Sevenoaks Way, Orpington, Kent. Auction starts 10-30am, viewing and testing from 9am.
15 JUNE Pickhurst Junior School, West Wickham, Kent. Auction starts 10-30am, viewing and testing from 9am.

SOUTH WEST

ABTEK (0722 413337)
1 JUNE-New College, Frobisher Road, Swindon. Viewing and testing from 8-30am, auction starts at 11am.

BIDDING TIPS

- Prices at auctions can be quite a lot lower than in shops, but you will have to pay in full on the day.
- Make sure you get a catalogue before you go along. If you phone the companies they should be happy to supply you one.
- Set yourself a limit.
- Give any items you are considering bidding for a good look over and check if there is any warranty. If there is not you still have the rights of a second-hand buyer. Under the Sale Of Goods Act you are entitled to a refund if the item is faulty or does not match up its description.
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THE PD COLUMN

It's Public Domain time again folks, your weekly guide to all the best in (almost) completely free software. This week: Mac mania, weird demos and great games...

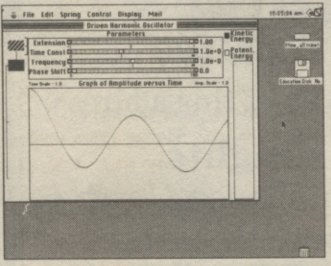
MAC FANTASTIC

The Apple Macintosh has long been a computer associated with huge bank balances and unlimited spending power. What need then, would people who could afford such a machine, have of free software?

Probably very little, but with the advent of the Mac Classic, Apple power and flexibility has come within reach of a whole new market. The Classic isn't much more expensive than an Amiga (with monitor), and offers one of the best desktop environments around.

So what does this have to do with Public Domain software? Fact is, the American PD scene caters extremely well for the Macintosh. Hobbyists and professional programmers alike have been pumping out software of incredible quality for years now.

Fantasia Software in Bristol has a useful and impressive range of Macintosh and PC software. The firm dropped off a few sample disks of assorted stuff at the office, an office which happens to be chock-a-block full of gleaming Macs.



• Harmonic Oscilllation: learning physics with the Mac is easy and fun.

A lot of the software was extensions, add-ons and variations of desktop features. Some serious, some not so serious. One of the weirder things was a disk containing screen saver graphics. Screen savers are pictures which flash randomly when you aren't using your Mac. These stop images burning your picture tube and ruining your monitor.

Lots of these were simply pictures, but the most entertaining one is a little group of fish who swim around, the big ones eating the little ones. Well, we thought it was funny anyway.

On a more practical note, the discs contain some absolutely brilliant educational programs, covering all ages, from toddlers to adults (at least adults with a precarious grip on the likes of particle physics and bio-chemistry).

There is a simple and useful arithmetic teaching program. This displays a running child (boy or girl depending on your choice). The child will run toward a finish line if you answer an arithmetic problem correctly.

We all know Mr. Einstein's theory, but watching it graphically on screen clears a lot of confusion

The answers are displayed multiple choice style at the top of the screen. This makes the margin for error slightly less, but is a useful gauge of how well your child grasps arithmetic.

The difficulty can be set before the "game" begins, so you can vary it according to your child's age or ability. The program isn't particularly complex, but it is polished and entertaining.

For the more intellectually aspirational among you, there is a whole suite of physics software, all educational. This software includes practical demonstrations of most aspects of physics, the most intriguing of which is a graphical model of the theory of relativity.

This particular program shows a "rocket" made of clocks, travelling at light speed. As the rocket accelerates, the effect of faster than light travel is shown on the clocks. The hands of the clocks, following mathematical principles, begin to move backwards. This apparently proves Einstein's theory of relativity. We have all heard the theory, but watching it explained graphically on screen clears up a lot of doubts.

There are also similar programs explaining Kepler's spring thing theory, Ballistic motion, potential energy and harmonic oscillation. Great for all the people who flunked physics at school.

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BUSINESS B01

BIPLANE This spreadsheet comes in either DA or application . Contains 32 built in formulae.
MOCKPACKAGE 4.3.4 This is a set of four DAs, MockWrite, MockPrinter, MockChart & MockTerminal.
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SCREENLOCK DA Asks for Password and then it blanks the screen, Wont reactivate the screen until the same password is entered
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SYSPWD Startup password protection program for use with Hard disks.
FLINTLOCK Similar to SYSPWD.
dCAD A good financial calculator.
PAINTSHOW Reads lists of MacPaint files and shows them in slide show fashion.
MACBILLBOARD Print billboard sized pictures using a standard printer, Good giant jigsaw maker.
BANNER Print a large simple text message on an imagewriter printer.

GAMES G03

GOLF Popular version of solitaire.
HEARTS Another Popular card game.
KING ALBERT Another clone of Solitaire, variation on Klondike.
KLONDIKE The all time classic Solitaire
MAC SEVEN Stategy card game
DECK EDIT Customise the graphics on the cards. Only works with certain card games.
TRICK TRACK A dice game played in some pubs.
PLUS: Ax Headroom, Automata, Pyramid, High Roller, Mouse Craps, Loto & Bill's Casino

GAMES G06

STUNT COPTER Drop the stuntman into the hay wagon from the helicopter
TORPEDOES Sink passing ships with your torpedoes.
TRON CYCLES Try to block your enermies cycles before he blocks you.
UTAAN ATTACK Destroy the ships before they reach the bottom of the screen.
WIZARDS FIRE Three games in one! Breakout, Pressure and Wizards fire (just like Missle Command.)
ZERO GRAVITY Keep your man in the middle of the zero gravity to get the lowest score.

GRAPHICS GR10

STARTUP SCREENS Are you sick of the normal startup screen, then why not get this disk. All you do is put one of the startup-screens into the system folder and when you startup you will be greeted by this screen instead of the WELCOME TO MACINTOSH screen. Screens include the Batman logos and pictures, plus many more.

COMMS C01

RED RYDER
This is the best communications program all round, it is also the most popular program of its kind for the Macintosh. All other communication programs are measured up against this one. Use it to call up other Bulletin Board Systems or call Compuserve etc... You can connect to almost any other computer.

EDUCATION E01

BRAIN BUSTERS Maths games for kids.
GRADE Teacher gradebook program.
GRAVITATION 2 dimensional orbital simulation.
MACGRAPH Outstanding mathmatical function graphing program.
MECHANICS 5 Small graphics programs that illustrate various principles of physics.
MONSTER MATH Add up numbers and evade the monsters.
OYSTER Demo system that enambles you to create your own tutorials
TINY TAFEL Geneology program that will help you get back to your roots.
TOOLS FOR WRITERS The only shareware version we have seen. With it you are able to check your writing for vague words.

EDUCATION E02

GEOLOGY Various graphic programs that can be used for picture aids in geology classes. Requires MacPaint or Superpaint.
ADD Basic math tutor.
HELOMAT Fly the helicopter through the obstacles and shoot the problem that matches the answer.
MATH DRILL Drills you in basic math.
MATH MOUNTAIN Answer the maths questions to get the mountain climber up the mountain.
MATH MUD Give the correct answer to keep the boy from falling in the mud.
MATHMASTER 2 Designed to help teach algebra students many of the basics for first year algebra
MATH TUTOR Teach students various types of simple maths.

MAC STACK 22

MATH FLASHCARDS Flash cards for addition, subtration, multiplication and division.
MATHVENTURE Progress through the jungle, Requires Macintalk.
MONEY Quizzes children on money.
OLLIES NEW MATH Ollie the owl drills children in Addition, Subtration, Multiplication & Division.
PLOTIT Enter X & Y data to be plotted on a graph.
RIGHT TRIANGLE Calculate the unknown properties of a right angle triangle.
HEATHERS NOTES Teaches notes on the keyboard, using pre-recorded notes, voices and musical sounds.

DA's DA01

AIRPORTS Calculate distances between airports.
STARGAZER Shows the night sky for todays date.
PLANETS Shows the planets visible on todays date.
3D TIC TAC TOE Play against the computer on four levels at once.
PLUS: Calculators, Text editors, Screen savers, Tunes, comms, and a selection of novelty DA's too numerous to mention.

PROGRAM P01

DATAFLOW A Mac Flow Charter. Debug programs before coding them.
DIALOG CREATOR Make your own dialog boxes and then move them using Resedit or similar.
DISARM Diassemble 68000 resource code.
EDIT 2.1 A text editor for programmers. Suto indent, search and replace, time stamping and more.
LAYOUT Customise your finder. Change icon spacing, default fonts, and more. Be very careful this package is very powerful.

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A BIT TOO SERIOUS?

If all this talk of Einstein and Kepler is a bit too much for your poor brain, then Fantasia can also provide a nice easy range of games. Mostly puzzle games, but there are a couple of arcadey titles floating around. The range of games is all very well, but hidden amongst them was a real little gem.

A guitar synth! It will keep you engrossed for hours. The strings of the guitar are displayed on screen, you simply drag the mouse pointer across them to play notes or even chords.

It is completely idiot proof, you hold down selected keys to change the note or chord and away you go. Twang, kerrang, Woooaaaway. Eddie Van Halen eat your heart out. Well, no, not quite. But while the sounds aren't exactly AC/DC, they are enough to give you a few hours strumming fun.

DEMOS TO GAMES

A reasonably well known PD demo maker and supplier has finally put its name on the map. Seventeen Bit Software has just released its first fully commercial game.

Full Contact is obviously far too good to be released on the PD circuit and so, by securing a publishing deal with specially named budget label Team 17, the Seventeenies have started something really interesting.

Demo makers make games? Everyone knows that the best demos include some absolutely stunning programming techniques, these it seems have been carried over onto the well received first release.

Stalwart PD spotters may be able to recognise some of the graphic styles used. Well done to the Seventeen Bit team, especially as the game has been released at a 16-bit budget price of £10.99, which should put many big software houses to shame.

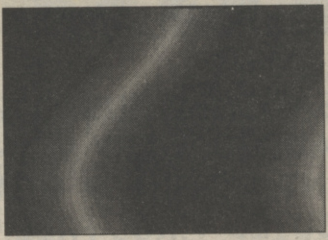
GET SPACED OUT

Aircraft and spacecraft enthusiasts will be pleased to hear that a disk packed full of hugely interesting information on all things aeronatical has become available, including articles from leading NASA scientists, no less.

One of these is a rather sinister letter from a NASA guy explaining that he had to stop work for a time, while repairs were made to the sealing rings on the doomed shuttle Challenger. Apparently, it was written before that terrible accident of 1986.

It's these little extras which set this program apart from standardised lists and numbers information databases which, while useful, hardly make for a jolly riveting read.

AMIGA PSYCHEDELIC TRIP



• No Limits: Wild Amiga demo

Amiga demos are hardly sparse, so it comes as something of a surprise when a demo makes you sit up and take notice. New Wave software sent along a demo that did just that.

The No Limits Back Pack 2 demo (I swear, the names get even more stupid than that) contains some really pokey tunes and graphical effects, some of which are impressive and some completely mind-blowing.

One of the options on the menu you are presented with, is to boot up some of the most psychedelic images you'll ever see. Most of these involve bands of colour moving almost exactly like water. The movement of the "water" is almost hypnotic and further enhanced by the use of a full 4096 colours.

The music tracks accompanying this visual display are, without exception, brillian with excellent use of samples and sequencing software. Most alluring is a kind of Japanese sounding hip-hop mix.

There are the usual vector and copper bar displays, all of which are pulled off flawlessly and seemingly in time to the music. The good thing about the No Limits demo is that it features the work of a fair few artists. Musicians and programmers, all showing off as much as they can fit on a disk. ■

WHERE TO GO

Fantasia Software supplies a vast range of software for IBM PCs and Apple Macintosh. Its Mac catalogue will be available shortly, send an SAE to: Fantasia Shareware, PO Box 1254, Compton Martin, Bristol. Tel: 0761 221585

Seventeen Bit Software can be contacted at:
Seventeen Bit Software, PO Box 97, Wakefield, WF1 1XX. Tel: 0924 366982

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PERFECT OUTPUT

Thermal wax transfer printing is a relatively new method of producing high-quality colour output at an affordable price. John Cooper takes a look at one of the cheapest devices on the market: The Spectra*Star.

Until fairly recently, colour output was prohibitively expensive – either you accepted relatively poor quality output from colour inkjet printers or you paid several tens of thousands of pounds for a high-quality colour output device.

However, recent advances in technology have meant that the price has dropped radically – the cheapest machine in the Spectra*Star range now sells for just £4,000 plus VAT. OK, it's still not exactly peanuts, but small businesses are now considering colour printers as an alternative to going to the local copy shop to produce things like coloured overhead transparency slides.

COLOUR THEORY

Colours on the page are created by overlaying varying amounts of three 'primary printing colours' – cyan, magenta and yellow. Although black can be created simply by overlaying 100 per cent of all three colours, in practice this black is not dark enough – it tends to look slightly grey – so black is printed as a fourth colour. This is why full-colour printing is often referred to as 'CMYK': for Cyan, Magenta, Yellow and the Key colour (black).

Desktop colour printers are generally either three-colour, relying on mixing the three together to produce black, or four-colour, with a separate black ink as the fourth colour. Three-colour printers are normally much cheaper than their four-colour equivalents, but are not generally regarded as being as good for exact colour proofing work.

THE SPECTRA*STAR

The printer on review is the middle model in the Spectra*Star range, the 430, and can work in both three and four-colour modes. It can also, if required, just have a black 'ribbon' installed, although this seems to be a bit of a waste – you don't often think of paying £6,900 for a one-colour printer.

Setting up was simplicity itself. Installing the ribbon is a piece of cake; from opening the box to having the printer sitting on the desk (a rather large and sturdy desk is required, it should be noted) took less than fifteen minutes.

The model we tested has parallel, serial and AppleTalk connectors, so attaching it to a computer was no problem; again, the documentation is good and the package includes 3.5-inch and 5.25-inch disks containing PC utilities as well as a 3.5-inch Macintosh disk.

For test purposes we connected the machine to one of the office Macs. This involved simply plugging the printer into the Mac via AppleTalk and installing a couple of small pieces of software. The printer output an image first time – but only in mono. It took us about half an hour before we discovered the problem: you have to alter the printer type from 'LaserWriter II' to something like 'QMS ColourScript' or 'Tek Phaser PX' before you can persuade the printer to actually output colour. Easy when you know how, but it would have been easier if the manual had actually informed us, rather than leaving us to guess.

This problem solved, the printer was faultless in operation. The output of thermal wax transfer devices is slightly shiny, which means that printouts look very impressive. The only other niggle is one which is common to all colour printers of this type: because the printer must grip the paper tightly as it moves it about to ensure that colours are not printed out of registration, it is impossible to achieve a full A4-sized output.

Using the printer from a PC is equally simple; emulation modes include HP-GL and PostScript, so there should be no problem getting your software to talk to it.

IS IT WORTH IT?

The printer's supplier, General Parametrics, claims that consumables such as the ribbons and paper (you can't use normal paper in the printer) cost about 20 per cent less than their competitors'. However, this still leaves you with a cost of about 38 pence per page output on paper and a staggering 98 pence per page on OHP film. Clearly, the printer is not intended for outputting reams of pages every day. But for the small business which needs something for rough colour proofing, or even for producing colour front pages for limited-run brochures (the cost per page is far cheaper than getting a colour photocopy), this printer is well worth considering. ■

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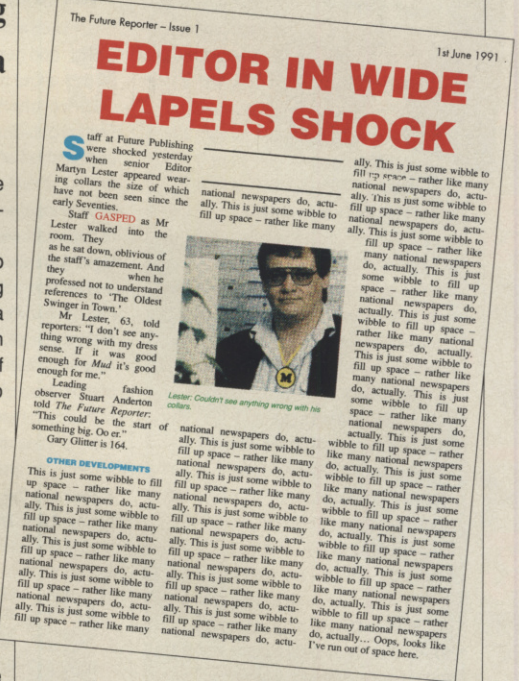
*The prices of the Spectra*Star range are on a separate panel. The suppliers, General Parametrics, can be contacted on 081 897 3646.*



The Future Reporter – Issue 1

1st June 1991

EDITOR IN WIDE LAPELS SHOCK

Staff at Future Publishing were shocked yesterday when senior Editor Martyn Lester appeared wearing collars the size of which have not been seen since the early Seventies.

Staff GASPED as Mr Lester walked into the room. They as he sat down, oblivious of the staff's amazement. And they when he professed not to understand references to 'The Oldest Swinger in Town.'

Mr Lester, 63, told reporters: "I don't see anything wrong with my dress sense. If it was good enough for *Mud* it's good enough for me."

Leading fashion observer Stuart Anderton told *The Future Reporter*: "This could be the start of something big. Oo er."

Gary Glitter is 164.

Lester: Couldn't see anything wrong with his collars.

OTHER DEVELOPMENTS

This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually. This is just some wibble to fill up space – rather like many national newspapers do, actually… Oops, looks like I've run out of space here.

• Printing glossy colour pages on the Spectra*Star is cheaper than getting a colour photocopy made.

PRODUCT DETAILS

There are four models in the Spectra*Star range (we reviewed the 430). Each model includes all the features of the one before:

- **Model 410: 1Mb RAM, Serial and Parallel ports, Mitsubishi emulation. £4,000 + VAT.**
- **Model 420: 4Mb RAM, HP-GL and TARGA emulation. £4,900 + VAT.**
- **Model 430: 6Mb RAM, AppleTalk port, PostScript interpreter, 35 fonts. £6,900 + VAT.**
- **Model 440: 30Mb internal hard disk. £TBA.**
- **Model 450: Able to produce 35mm slides (with option add-on). £TBA.**

FOR AND AGAINST

POINTS FOR

▲ Easy to set up.
▲ Professional-looking output.
▲ Fast printing speed.
▲ Good range of emulations available – including PostScript.
▲ Easy to use to produce overhead projector slides.

POINTS AGAINST

▼ Expensive initial purchase.
▼ Far higher cost-per-page than normal laser printers.
▼ Requires its own special paper.

SO WHAT IS THIS THERMAL WAX TRANSFER THEN?

Thermal wax transfer printing is a process whereby coloured, translucent wax-based inks are transferred from a 'ribbon' to the paper. Three-colour printers have three different ribbons: cyan, magenta and yellow. Four-colour printers also have a black ribbon.

Different colours are generated by superimposing two or more films on top of each other – for example, three-colour printers produce black by putting all three films on top of each other. This has both advantages and disadvantages: three-colour printers are cheaper, but give a less dark black than four-colour devices. For many, the black is perfectly adequate – it's only if you want exact colour matching that you might not find it deep enough.

A far cheaper method of colour printing is inkjet printing, where coloured inks are sprayed at the page. However, there is a drawback to the lower price – the quality is nowhere near as good. If you are looking for decent quality colour output, thermal transfer is the only real option.

Games Week

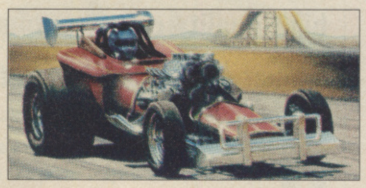
Riding along on the crest of a software wave, Gary Penn surfs up the news, views, previews and reviews of the latest happening items...

Good news for anyone who can't afford much more than the cheapest of budget titles ... French publisher UbiSoft is releasing five compilations of former full-price titles this summer, with a further five collections due to appear before the end of this year. ***Magnum*** (£26.99) brings together a diverse mixture of simulation and arcade action, with UbiSoft's very reasonable ***Pro Tennis Tour***, the motorcycle racer ***RVF Honda*** and ***Oriental Game*** (which takes its combination of events a little too seriously for my liking)- and two run-of-the-mill Dinamic titles: the arcade adventure come run-'n'-jump romp ***Satan*** and the slightly less runny and jumpy ***After The War***.

The Winning 5 (£29.99) has a content no less varied but is exclusively a UbiSoft affair. The collection comprises the mediaeval adventure ***Iron Lord,*** the vampire-orientated arcade adventure action of ***NightHunter***, the sickeningly cute Gauntlet-inspired ***Puffy's Saga***, and two quite respectable arcade adventures: ***Twin World*** and ***Sir Fred***.

• • • • • • • • • • •

Cassette-based Amstrad CPC, Spectrum and Commodore 64 users need not feel left out, for there are two compatible compilations coming ... ***The Ultimate Collection*** and ***Six Appeal***, both featuring six titles and priced at £14.99.The Ultimate Collection's star attraction - Geoff Crammond's superlative ***Stunt Car Racer*** (first released on the MicroStyle label) -is joined by three titles from UbiSoft and two from Spanish publisher Dinamic. Ubi's contributions are the future sport ***Skatewars***, the atmospheric cursor-controlled adventure ***Zombi*** , and ***ProTennis Tour.*** The Dinamic duo comprises ***After The War*** and the butt-kicking blaster ***AMC***.



• Stunt Car Racer: ***just as fast, but at half price.***

• • • • • • • • • • •

The saucy-sounding ***Six Appeal*** (which is also available in diskette form for £19.99 on the Commodore 64 only) has just that. The most appealing of the six is Core Design's ***Rick Dangerous*** (first released on the Firebird label).The Firebird-produced conversions of Jaleco's arcade shoot 'em up ***P-47*** have their moments, as do Dinamic's ***Satan*** and UbiSoft's ***Twin World***, ***Puffy's Saga*** and the peculiar arcade-style puzzler (for want of a more appropriate term) ***Pick 'n' Pile***.

Last but not least, there's fun to be had for all the IBM PC family and

TOP 10 SIXTEEN-BIT GAMES

THIS WEEK	LAST WEEK	TITLE	PUBLISHER	MACHINE
1	NE	***Eye of the beholder***	US Gold	AG
2	10	***Hero Quest***	Gremlin Graphics	ST AG
3	8	***Monkey Island***	US Gold	AG PC
4	6	***Lemmings***	Psygnosis	ST AG
5	1	***Defender of the Crown***	Mirror Image	ST AG PC
6	9	***Gods***	Renegade/Mindscape	ST AG
7	7	***Fantasy World dizzy***	Codemasters	ST AG
8	5	***North and South***	Digital Integration	ST AG
9	2	***Steve Davis World Snooker***	CDS	ST AG
10	20	***Ninja Rabbits***	Micro value	ST AG

ST = Atari ST AG = Commodore Amiga PC = IBM PC or compatible OT = Other
Chart compiled by Gallup. © European Leisure Software Publishers Assoc.

BUBBLING UNDER

● Nintendo's *Super Famicom* launched to the Japanese public last year, is at last set to appear in a modified form in the USA this summer. It should reach Europe in 1993.

● Owners of imported machines will also be pleased to hear that Electronic Arts has three new *Super Famicom* titles . Well, new-ish, for these are cosmetically enhanced conversions of existing Sega MegaDrive releases ... Joining *Populous* on the *SuperFamicom* will be the basketball simulation *Celtic Versus Lakers*, *John Madden's Football*, and *PGA Tour Golf.* Could this affect the loyalty of MegaDrive owners? We asked Electronic Arts' PR Manager Simon Jeffrey. He believes "it will vary from title to title. The *Super Famicom's* specialities lie in different areas to the MegaDrive's. Sound is one of its strongest features, and this is of major interest for us, especially with Rob Hubbard writing our tunes. He's done some great stuff for the Sega and he's been itching to get his hands on the *Super Famicom's* Sony chip for sometime, so you really will notice the difference."

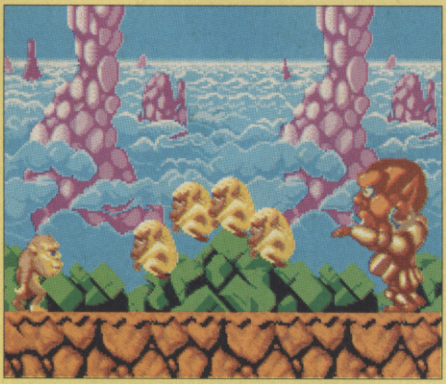
The quantity of home computer to console conversions is increasing, especially with more and more developers keen to move on to writing for the more financially rewarding consoles. The situation could work in reverse - EA for one isn't ruling out the possibility of converting, say, *John Madden's Football* to the Amiga.

"Consoles and home computers can sit side by side. There are different mentalities of owner. Some buy a home computer because there is still the premise that you can do other things with it, more so in Europe where people are more suspicious of the idea of computers purely for home entertainment."

And what of Electronic Arts' vision of the future of console software? "I think you'll see quite a few polygon games appearing,"says Simon. "Sega has licensed *Abrams Battle Tank* from us and has converted it to the MegaDrive for release in October. In September we're shipping *F-22 Advanced Tactical Fighter* for the MegaDrive - and that's a polygon-based flight simulation."

TOKI

Ocean• Amstrad Cartridge £24.99, Commodore 64 Cartridge £19.99, Spectrum Cassette £10.99, Amiga & Atari ST £24.99
Planned Versions: None



▲***The first end-of-level Boss encountered is this fellow. He leaps around the screen, making a grab for Toki and frequently issuing forth a string of four bouncing chimp-like beings. The Bosses get weirder still further into the adventure. A floating Michelin Man-alike throws bouncing eyeballs at Toki, and a large, long-legged creature spits out letters spelling out the word BURP!***

The course of true love never runs smooth, especially when your missus has just been abducted by a nefarious magician who, as a parting gesture, knocked you down to the lower rungs of the evolutionary ladder. The once rock-hard Toki is now an ape. A reunion and revenge are on the cards - but Toki's rival isn't dealing with a full deck. His world is split into six, every-way scrolling zones packed with platforms, ladders and bizarre beasts.

Being an ape does have advantages though, namely increased agility to aid negotiation of the environment, and the socially unacceptable ability to spit in almost any direction, which comes in handy when it comes to removing adversaries from the scene.

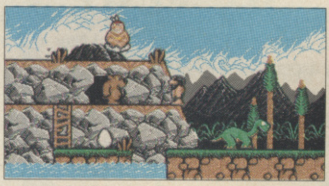
Toki's flobbing power is occasionally boosted and even turned to flame thanks to special icons left lying around. What a pity they don't last long. Tad Corporation's coin-operated cult favourite has come to the home-machines in style. These are cracking conversions all round, every one capturing the tough but playable and rewarding nature of the arcade parent. A special mention must go to the near-perfect Amiga version complete with its parallax scrolling and attractive 32-colour display.

RICK DANGEROUS

• Rick Dangerous: going underground.

compatible kin with five racey releases collectively known as ***FastLane***. ***Stunt Car Racer*** once again takes pole position. Just for the (track)record, the other four titles are Spectrum HoloByte's ***Vette*** , Electronic Arts' ageing but acceptable ***Ferrari Formula 1***, Domark's adequate conversion of Atari Games' ***Hard Drivin'*** and Microid's lacklustre ***Highway Patrol*** .

* * *



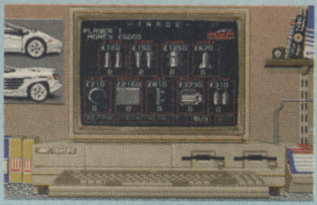
• Quest for food ensues in Prehistorik.

"Half human, half hungry" - that's how French publisher Titus describes the neanderthal star of its new run 'n' jump romp, ***Prehistorik***. This club-wielding caveman needs food, and so he undertakes a journey across the scrolling fields of Antarctica and through darkened caverns and Tropical jungles. He's not the only one who's hungry though - there are species of dangerous dinosaurs roaming the land too. Priced at £25.99, ***Prehistorik*** should be available for the Amiga, Atari ST and IBM PC and compatibles by the time you read this. ■

SUPER CARS Gremlin • Amiga, Atari ST

The choicest cuts of information and advice, courtesy of the authors, collectively known as Magnetic Fields.

THE SHOP



When the shop is visited the equipment costs are chosen at random from between a quarter of the maximum price and the maximum. The trade-in prices are simply three-quarters of the sale price shown. The following chart should prove useful for wheeler-dealing wheel-spinners...

ITEM	BUY	SELL
FRONTMISSILE	100 - 400	75 - 300
REAR MISSILE	150 - 600	110 -.450
HOMING MISSILES	375 - 1500	280 1125
SUPER MISSILE	250 - 1000	185 - 750
MINES	200 - 800	150 - 600
TURBO JUMP	125 - 500	90 - 375
ARMOUR	750 - 3000	560 - 2250
RAM	250 - 1000	185 - 750
ENGINE	1250 - 5000	935 - 3750

FRONT AND REAR MISSILES. They have their uses, sure, but they are best used to fund the purchase of other weapons. Buy them cheap then sell them when the price is right. HOMING MISSILES Unbeatable all-round entertainment, but best used to take out the opposition on fast courses or to clear narrow roads.

SUPER MISSILE Useful in tunnels where you can't see what's coming or on courses withgates where cars suddenly appear coming the other way.

MINES Keep the opposition off your tail - but don't forget that the mines do self-destruct.TURBO JUMP Use it to leap to the front of the queue at the very start of a race (ie when standing still) or for jumping trains (which is best done from a distance of approximately three cars).

ARMOURA Must Buy, but not at any cost. Be frugal. And be prepared for the hard level by buying all three grades. RAM All well and good, but it doesn't do your car any favours either. ENGINE Increases your car's top speed (which is near-essential on higherlevels) but don't sell your granny to white slave traders to get one.

COMMUNICATIONS

Don't turn them off - these screens are a good source of cash and points (provided you know the answers). On most screens it's wise to be self-confident but not cheeky. When it comes to dealing with theTransport Inspector, keep your answers as straightforward as possible.One of the answers is always RIGHT, one is always WRONG, and the othercould go either way so just because you got it right or wrong the first time, doesn't mean it will necessarily be so the next time around - haha!

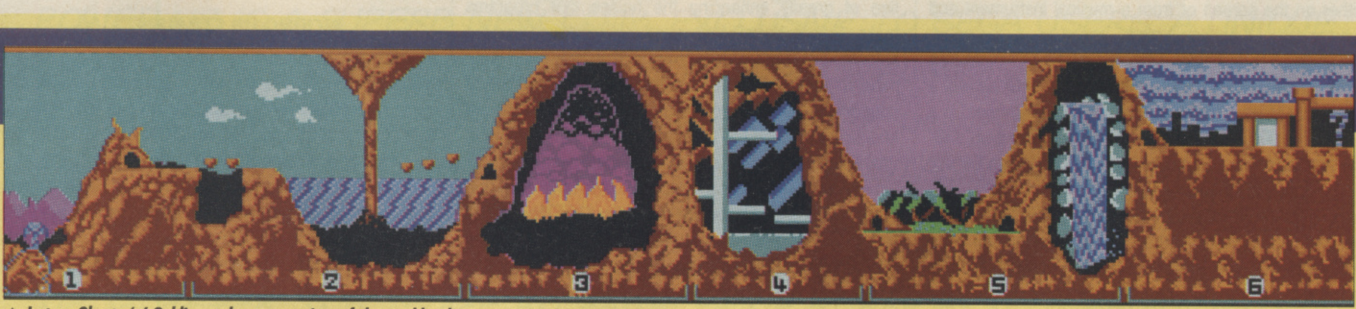
COURSE FEATURES

CATS AGAINST THE BOMB

JUMPS Keep as straight as possible at launch - unless there's a corner involved, in which case jumping at a slight angle can avoid a collision with a wall on the other side. If you get stuck in a traffic jam before a jump, wait until the mess clears before taking a run-up. CROSS OVERS Don't cheat - otherwise the lap won't count. Even if you get knocked off course, go back and clear this obstacle. OPENING GATES It's usually worth waiting for them to open, so do so. All the gates on the same course open and close at the same time, so it's easy enough to tell when the time is right. Bear in mind that you can just about squeeze through closing gates. TUNNELS So you got stuck and couldn't get out. The next time it happens, keep turning until the screen scrolls in the correct direction then make your move.

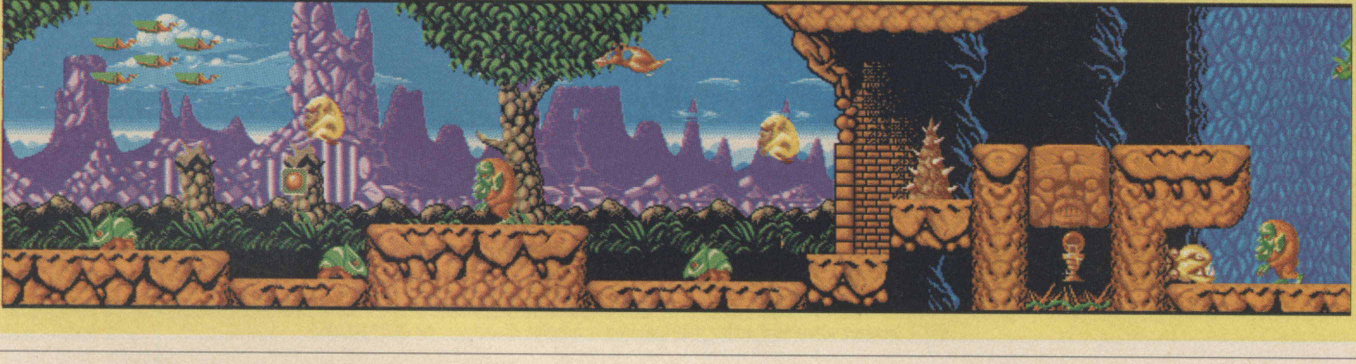
GENERAL ADVICE

HANDBRAKE TURNS These are best employed on tight corners. As the bend is approached,take your finger off the accelerator and turn the car. When it's halfway through the turn and thus the desired direction, hit the accelerator. OVERTAKINGThis is usually easily achieved on the straights, although it is possible to do the deed on the corners ... Take the inside line and bump the other car. By the time it gets its bearings you should be long gone. Remember that crashing into another car slows you bothdown, so there may be times when you need to be patient and wait for a more suitable overtaking opportunity.



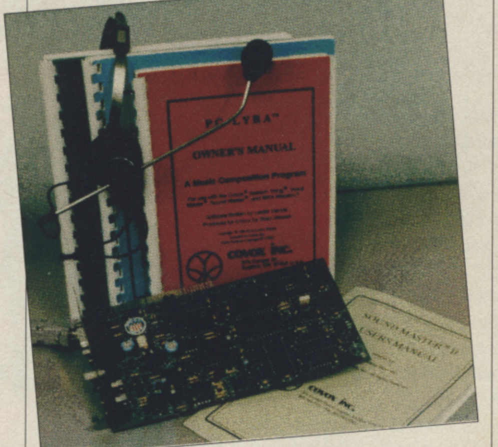
▲ In true Ghosts 'n' Goblins style, an overview of the world to beconquered is shown before play - just to let you know where you stand.

▼ This sizeable slice of the first zone serves to illustrate the attractiveness of Toki's odd, and hostile, environment. Note the 16-ton weight balanced on the see-saw to the far right - the combination's used to shoot Toki to new heights.



PC SOUND SOLUTION

The PC's sound is normally limited to a diminutive beep. Keith Pomfret listens to a soundcard that puts the PC into the Amiga sound league...



• Sound Master II has all that you'll need for PC sound including a headset, MIDI ports and comprehensive documentation.

Like most sound cards, Sound Master II comes from the US. This is hardly surprising considering that, as well as being a business machine, the PC is seen as much more of a home leisure machine than here in Britain.Thus the need for decent sounds.

Manufacturer Covox claims that the Sound Master II card and its associated peripherals offer a complete Multi-Media sound package compatible with all major PC specifications and existing industry standards.So what's it all about?

POWER OF SPEECH

Most important to the PC gamer is Sound Master's compatibility with industry standard sound-card Ad-Lib.

This means hundreds of programs boasting sound drivers for the Ad Lib board can benefit from Sound Master II. As well as the ability to enhance the sound of games, there are several other features that make it a fascinating and well specified product.

The board can sample and edit sound, work as a MIDI interface, function as a polyphonic multi-tymbral synthesiser and recognise and synthesise speech.

Software is provided to do all of this, and a MIDI record and notation package allows you to record music either on the screen or from a musical instrument and view and print it as manuscript.

In the Soundmaster II box is an 8-bit PC expansion card, a headset with built in microphone, MIDI cables, a speaker, software and manuals. Installing the board is a simple matter of unplugging the PC, opening it up, sliding the card into any available eight or sixteen bit slot and securing it. No problems there.

There's an included cable to allow the Sound Master II to connect to the speaker port on the PC's main system board and this caused a slight panic due to the fact that the portable we planned to test the card on didn't have an accessible main board.

A switch to a desk top machine brought the board into view but some ingenuity was needed to make the connection and pursuade it to work. Once this had been done, it was a simple matter to put the P.C back together and check the rest of the package's contents.

FOR AND AGAINST

FOR
- ▲ Well specified
- ▲ Well featured
- ▲ Ad Lib compatible
- ▲ Good documentation

AGAINST
- ▼ Software not as user friendly as some
- ▼ Good value but £200+ is still a lot to pay if you only want a soundcard

PASS THE PORT

With the board installed, there were inputs for line/microphone and a low level signal input, a volume control, mini-jack audio output and a nine pin port for connecting the provided MIDI cable.

The hardware was installed and connected in about 15 minutes and with the machine re-assembled it was time to run the test software to make sure that all was OK. All the tests were passed with flying colours and it was on to the test proper.

Sound Master II buys you the facilities to do a great deal more than listen to the pleasant screeches of dying aliens

Most soundcards for the PC serve a simple function of greatly enhancing the noises that programs make. Games benefit from more realistic sound and the hideous IBM beep is done away with in favour of something a good deal more melodic. While most simple soundcards stop there, the extra you'll pay for Sound Master II buys you the facilities to do a great deal more than listen to the pleasant screeches of dying aliens.

In order to be able to process sound other than that made on its own synthesiser chip, it has two inputs. The first is a low level input suitable for dynamic pattern microphones of recording studio quality. The second is a high level input suitable for signal line or microphones working on the electret crystal principle. The analogue inputs are boosted by a pre-amplifier.

GOOD AS THE AMIGA?

Digital input is handled by an 8-bit AD converter which allows a sampling rate of 25KHz. This is comparable to digitisers being used with the Amiga and is certainly a high enough sample rate to allow decent clarity of the sampled sound.

Once the sound is into the PC, it can be edited from existing files from itself or other soundboards. Waveform editing software allows ,the sound to be edited on the fly or from files. Real time editing includes pitch changing, harmony building, flanger and chorus effects, echo, reverb, and distortion.

To compliment the real-time effects there is an on screen waveform editor that features a graphic display of the section of the sound that you're working on. Using this screen you can cut, paste, splice, invert filter, move and adjust any aspect of the sounds.

Once the sound is processed it is output via a digitiser offering the same sample rate as commercial CDs, although the hardware isn't able to produce CD quality sound just yet.

If a digital or analogue sound source isn't available, there's an on-board multichannel polyphonic synthesiser. This uses FM synthesis to voice up to nine melodic sounds or 11 if percussion is included. Analogue synth effects such as vibrato (frequency modulation) and tremelo (amplitude modulation) and combinations of both are possible. Because the synthesiser is Ad Lib compatible it is possible to use it with professional MIDI software that can drive the AdLib.

To allow two cards to be driven simultaneously or to avoid address problems, the port addresses of the Sound Master can be simply altered. A MIDI lead is provided and configures the card for a pair of MIDI ports (in and out). MIDI software can drive the card internally or externally and the availibility of all of these features on a single card solves all of the PC sound input output problems and yet only uses one expansion slot.

PICKING UP STRAUSS

Finally, and in some ways most impressively, Sound Master II has software that allows speech synthesis and voice recognition. The current version can recognise up to 1,000 voice commands, so saying to the PC, "Play me some Strauss" could become a reality.

The voice recognition software is a cut-down version of Voice Master Key and allows you to train the computer to recognise your voice. Voice commands are simple using a headset provided with a built in microphone. With this powerful facility, it is possible to password protect your computer in a way that means that if someone finds out your password, they still can't get in because they haven't your voice. This is fine until you get flu and your voice goes husky!

EARS THE VERDICT

At £207 it's more expensive than some soundcards (although still cheaper than the Roland LAPC1). Its strength is in the specification that included everything you could possibly want. It's costly but worth every penny. Your ears will never cringe to the vile sounds of your PCever again.■

The PC Sound Master features MIDI, Voice actuated software, speech synthesis, dgitising and sound editing. Price £207 including VAT. Available from Covox Europe on 0983 867050.

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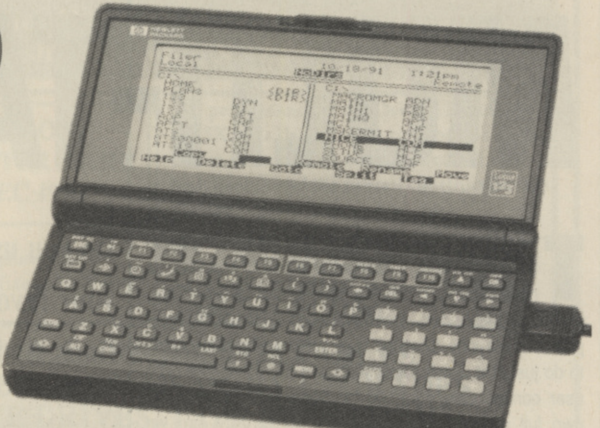
PALMTOP POWER



First seen in this country at April's Which Show, Hewlett-Packard and Lotus's acclaimed HP 95LX palmtop PC, will be in the shops in two weeks time. Stuart Clark got his palms on one ahead of the hordes...

Look at the relative failure of the innovative Poqet PC with the benefit of hindsight and you could easily conclude there's no market for palmtop PCs. Sure, it's small, light and uses memory cards for storage, but the keyboard's awful and it's far too expensive.

Poqet came up with some good ideas but failed to capitalise on what has to be one of the biggest markets of the nineties. Both Hewlett Packard and Lotus know this and are well known as heavyweight purveyors of respected hardware and software. HP with its long history of PC manufacture, Lotus with its quasi-industry standard business analysis software *1-2-3* - the biggest selling program in the world. So it's not much of surprise to see the two companies coming together to produce a portable platform to target the 14 million *1-2-3* users world-wide.

The theory is straightforward enough. Lotus *1-2-3* is a world standard like the PC. Its users increasingly wish to take their worksheets, graphics and macros wherever they may be. What they therefore require is the applications software on read only memory (ROM), so it's always there, embodied in a small, lightweight hand-held which can easily be hooked up to a desktop PC for transferring files.

So, after years of development work in conjunction with Intel, you have yourself a £449 +VAT mini-marvel with one-key access to all applications, built-in organiser tools, support for third party software and communication capabilities. And what's more it's the size of a cheque book and weighs only 11 ounces. Coupled with one of Touchbase's Worldport range of portable fax/modems and a printer like Kodak's miniature Diconix and you finally have the office any money-man can carry in his jacket. Poqet must be very worried people indeed. But enough of the promise - How does this palmtop perform?

UNDER THE HOOD

Let's first have a look at what powers it. Two AA batteries actually. These drive the heart of the 95LX; its custom PC XT chipset developed by Intel which reduces the size of a standard PC from five integrated circuits to two. Occupying only 2.5 by 3.25 inches this tiny motherboard offers performance which HP say is two and a half times more powerful than a standard XT. Running on this is the first built-in implementation of MS-DOS ROM, Microsoft's operating system, version 3.22, which is booted from read only memory. Input, to memory card loaded software, is via a neat QWERTY keyboard, with a 16 line x 40 character supertwist LCD screen displaying output.

The keyboard is virtually useless unless you can't type properly. That's because only two fingers can comfortably fit in this constrained space. What's more, the keys are more like calculator buttons than 'real' keys so word processing has annoying difficulties. But as a formulae and number input device, it's fine - which is presumably why *1-2-3* is on-board. Lessons have been learnt from the Poqet role model - the HP/Lotus market is for the money-men; leave the palmtop word processor to someone more reckless.

The screen is more of an innovation though since it is backlit by 12 volts rather than the more usual 5V and can thus be read in a greater number of positions and lighting conditions.

With the £395 Lotus *1-2-3* on-board, this palmtop will cost you only £54!

RAM cards can be slotted home in the built-in memory card drive to store portable data. All this is contained in a unit measuring only 6 inches wide, 3.5 inches long and one inch high. Power, supplied by the batteries, with a backup lithium unit to retain RAM when you change batteries, is ingeniously conserved. The microprocessor actually shuts down between keystrokes and the entire system goes to sleep after five minutes. Both these features allow a claimed average battery life of one month. There's also a mains adaptor you can hook up to.

READY TO ROLL

Besides *1-2-3* the 95LX has an appointment book, a telephone book, a memo pad, a file manager, a communications program and a financial calculator with tons of macros. What makes the machine nice to use is that there's a common interface to all the software. You can cut and paste data easily between applications and each one is always open. This means that in switching between tasks you are always returned to where you left off. This is plain common sense - it should be *de rigour* in all notebook PCs.

With DOS *1-2-3* and the other applications in ROM, a quick check on the system status shows there's about 380K available for running RAM resident programs. You can use the built-in utility to set aside areas of this spare memory as a C drive RAM disk.

MAKING CONNECTIONS

You can also run any DOS applications you can find on memory cards - not a lot of well known ones at the moment - or, software protection allowing, download them from your host PC as long as you can configure their screens to the 95LX's 16x40 display. Thus the only means by which you can run DOS programs will be by using the machine's serial interface. The software included to make the most of this will also run on your host PC, so you can continually update both machines with new data by simply connecting the two with a serial cable transferring data at 57,600 bits per second - quite a healthy baud rate.

The other neat option is an infra-red connection for transferring files between two 95LXs. Here data can be copied between machines at up to 2400 baud as long as the machines are less than eight inches apart.

SIZING UP THE COMPETITION

The Atari Portfolio and Poqet PC are the obvious peers of the 95LX. The Poqet scores over both in that it offers an 80 character display and its keyboard is, these days, considerably better than the 95LX's. The price is prohibitive though and you don't get Lotus *1-2-3*. The Atari Portfolio is a very popular machine but its display is even smaller than the 95LX and it only has 128K of RAM on-board. Of course, it only costs £199. The choice really depends on what you want a palmtop for. If spreadsheeting is your main use then the 95LX is the one to go for - it's PC compatible and has the £395 Lotus *1-2-3* included. So you could conclude that with this on-board this palmtop will cost you only £54! ■

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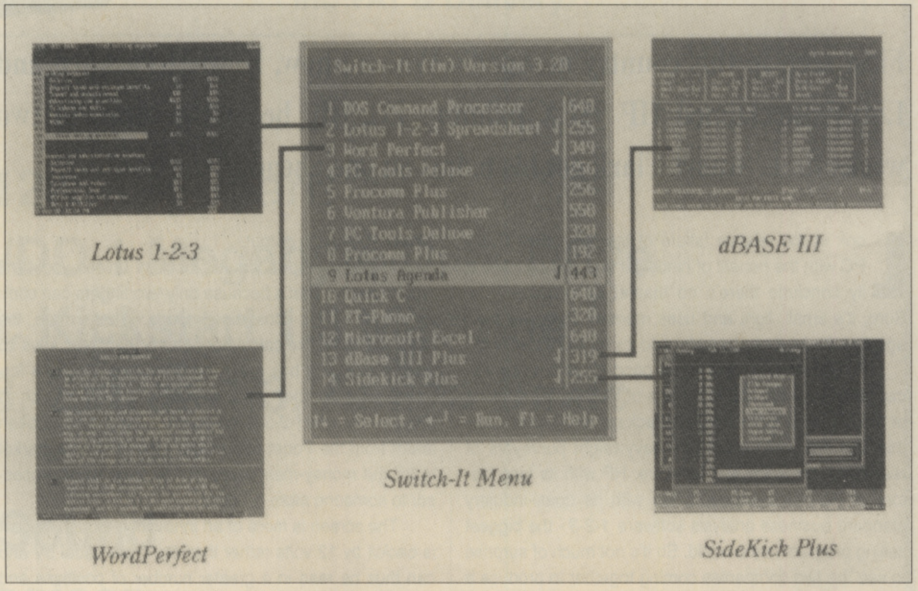
AGAINST

- ▼ **Keyboard lacks feel**
- ▼ **Unsuitable for word processing**

MULTI-TASKING PCs

Do you use a hard disk PC? Do you want instant access to any of 100 of your favourite programs while you're running others? As Simon Walsh finds, Switch-it could be the answer to your PC productivity prayers...



• *Whether you're in the middle of Lotus 1-2-3, WordPerfect or dBase, a keystroke moves you instantly to another program.*

The facility to seem to have a number of applications running simultaneously is not, of course, true multi-tasking, but being able to flick between programs in suspended states comes very close for most practical reasons. *Switch-It* is a utility which allows you to do just that. Each application can be highlighted on a user configurable menu to be launched, be given its own full screen window and full functionality and yet with one key stroke you can switch to other programs.

This includes the DOS command line; you can trawl through your last 30 DOS commands to save retyping and flick between the command line and any applications. In addition, other Terminate and Stay Resident (TSR) utilities are unaffected; without taking valuable memory space away from your main applications. Moreover you can use *Switch-it's* screen and memory handling to transfer screen data between programs; effectively integrating all your applications. Perhaps its most endearing features are the scope it gives you to continue working in one program while loading another and the neat facility to have multiple copies of the same program running simultaneously.

SETTING THE SWITCHES

Switch-It is not copy protected so installing it is simply a question of copying all the files on the single 3.5 inch or two 5.25 inch floppies onto your hard disk. Typing INSTALL at the DOS prompt takes you through a simple series of configurations. You are able to specifiy which directory path the program should reside in and whether you wish *Switch-It* to autoload each time you start up your machine. Then it automatically scans your hard disk for executable programs and builds its own menu ready for later switching. You can, of course, add to or subtract from the programs it has chosen, but for now this automatic selection is a very useful feature.

CHANNEL SWITCHING

Once up and running you are presented with a scrollable menu window, occupying roughly a quarter of the screen, with program names which can be highlighted either by using the up and down arrows, entering the number*Switch -il* has allocated it, or by typing in the first few letters of the program name. Pressing Enter performs the actual switch.

Next to the application names are ticks which represent the programs currently in suspension and can be activated by hitting the F4 key; the active program toggle. Also on this menu are readouts of the memory allocated to each program; which can be redefined. By hitting F1 while this menu is on screen, a help window appears which will explain all these items in more detail.

There are three different ways of switching between programs. The first is to use the menu screen just mentioned, but after you've become more familiar with the utility you can use either the active or hotkey switches. Active program switching merely relies on pressing the ALT up arrow or ALT down arrow keys together within any program and you will switch accordingly between the ticked applications in the menu screen. Hotkeying is the best way, but requires you to first to load *Switch-It's* Configuration Editor.

REDEFINING SUSPENSIONS

Here you're able to add new programs to *Switch-It* and rearrange the menu entry order besides setting up your hotkeys. These can be any key or key combination, but it's important to choose ones which don't conflict with the key combos found in the other program you use. The Configuration Editor also allows you to change a program's title on the menu, alter the memory allocated to it, and change its swap area. 'Program arguments' such as the particular default for a .BAT file can be entered here. But the most useful of all user custom key assigning, and enough reason in itself to buy the program, are undoubtedly the mark and transfer facilities.

Put simply, these functions allow you to capture data from one application and move it into another, leaving the first program unaffected. You mark the text or other data you want to transfer by pressing the default ALT-DEL, or whatever custom hotkey you've assigned, which then passes the material to a clipboard or RAM buffer and will stay there until new data replaces it. You then hit ALT-INS to paste the data into the application screen of your choice.

Before marking any text you should really specify what format your receiving program is going to expect - there's no use porting spreadsheet numbers into a word processor and expecting it to format the material perfectly. So you are able to specify both the sending and receiving format easily with pull-down menus. In addition you can specify whether you want to port a whole screen of data or just a portion of it. If it's the latter, you can specify a rectangle in which text will be highlighted - extremely useful if you only want to port a specific area of a spreadsheet into a word processor. Likewise when transferring text from a word processor, you can specify the start and end by selecting the text with the cursor. Finally you can paste the clipboard into a word processor, modify it and re-transfer it back onto the clipboard.

Switch-It is an extremely useful little program which will pay for itself in no time in terms of increased productivity and hassle-free working. *Switch-It* is available from GuildSoft on 0752 251155 and costs £79.95. ■

EXTENDED MEMORY SUPPORT

Switch-It can swap your programs from the 640k conventional memory into EMS or extended memory. Swapping in and out of memory is obviously faster than using a hard disk. To access any extended memory, you need to create a virtual disk or RAM drive (VDISK) to which your programs can be swapped. IF you have a 1Mbyte RAM system, with, typically, 380K of extended memory, it's best allow to leave up to 256K for a RAM disk and leave the rest for _Switch-It_.

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AGAINST
- **▼ Does not use a mouse**

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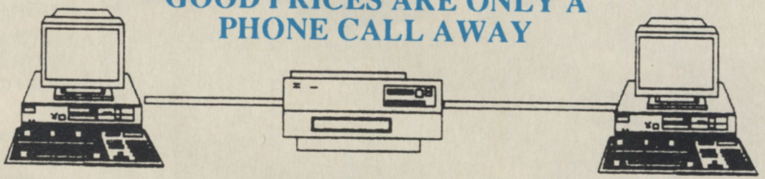

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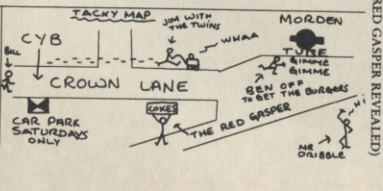

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Summer's fast approaching and we're ready to take the long holiday with not a thought of school. This week is the halfway point of the Commodore First Steps software competition so we're letting you off homework for a few weeks and continuing again with the second half of the competition in the Autumn.

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b) Therm
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d) Latin

3) What would you put in the drive of a CDTV

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c) Hard disk
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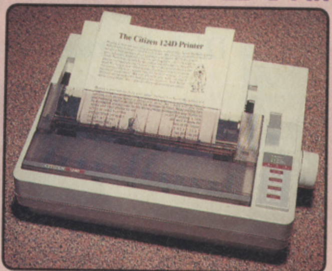
144 CPS DRAFT 24 PIN



CITIZEN 124D

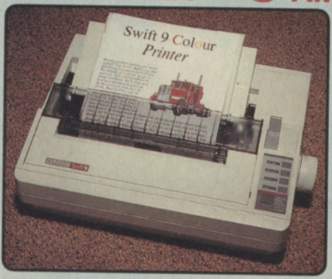
The award winning Citizen 124D brings high quality 24-pin dot matrix printing within every computer users reach. It is the ideal choice where high quality printing is required at a budget price.

- *24-pin Impact Printer*
- *Print Speed 144cps Draft*
- *2 LQ Fonts (48cps)*
- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *Superior Graphics - 360×360dpi*
- *FREE Starter Kit*

RRP	£292.58
STARTER KIT	£29.95
TOTAL RRP:	£322.53
SAVING:	£112.20
SILICA PRICE:	£210.33

£179
+VAT = £210.33

192 CPS DRAFT 9 PIN



SWIFT 9 - COLOUR!

The Citizen Swift 9 is perfect for those who require high quality dot matrix black or colour printing at a budget price. The print quality of Swift 9 rivals that of other manufacturer's 24-pin models.

- *9-pin Impact Printer*
- *Print Speed 192cps Draft*
- *3 NLQ Fonts (48cps)*
- *8K Buffer*
- *Epson & IBM Graphics Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

RRP	£280.83
STARTER KIT	£29.95
COLOUR KIT	£44.65
TOTAL RRP:	£355.43
SAVING:	£133.35
SILICA PRICE:	£222.08

£189
+VAT = £222.08

192 CPS DRAFT 24 PIN

Swift 24 Colour Printer

SWIFT 24 - COLOUR!

The Citizen Swift 24 is one of Europe's best selling printers and has won awards including Printer Of The Year 1990. Its rapid print speed, quality and black or colour options, make it a natural choice.

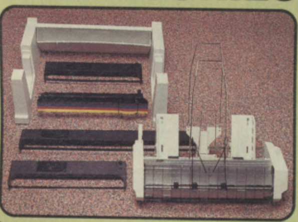
- *24-pin Impact Printer*
- *Print Speed 192cps Draft*
- *4 NLQ Fonts (64cps)*
- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

RRP	£428.88
STARTER KIT	£29.95
COLOUR KIT	£44.65
TOTAL RRP:	£503.48
SAVING:	£199.15
SILICA PRICE:	£304.33

£259
+VAT=£304.33

PRINTER ACCESSORIES



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PRA 1200	120D	£71.38
PRA 1215	124D/Swift 9/24	£88.70
PRA 1228	124D/Swift 9/24	£42.00
SERIAL INTERFACES		
PRA 1189	120D+	£56.45
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PRINTER STAND		
PRA 1242	124D/Swift 9/24	£24.03
ORIGINAL RIBBONS		
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RIB 3924	124D/Swift 24 Black	£4.70
RIB 3936	Swift 9/24 Colour	£15.63
COLOUR KITS		
PRA 1236	Swift 9/24	£39.65

All prices include VAT and Free delivery.

FREE! STARTER KIT

Every Citizen printer from Silica, comes complete with the Silica Printer Starter Kit, including everything you need to get up and running with your new printer immediately, FREE OF CHARGE!

- *3½" Dual Format Disk with Amiga & ST Printer Drivers*
- *3½" Disk with Drivers for Microsoft Windows 3*
- *2 Metre Parallel Printer Cable*
- *200 Sheets of High Quality Continuous Paper*
- *200 Continuous Address Labels on Tractor Feed*
- *5 Continuous Envelopes on Tractor Feed*

200 SHEETS PRINTER PACK

If you already own a printer, and would like a Silica Printer Starter Kit, you may order one (ref: KIT 5000) for the special Silica price of £24.95 - £5 off RRP!

NORMAL RRP
£29.95

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Before you decide when to buy your new printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or some technical help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is one of the UKs leading independent computer dealers and provides a quality service to users at home, in education and in business throughout the nation. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature on the Citizen printer range and begin to experience the "Silica Systems Service".

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To: Silica Systems, Dept NCE 0691 - 55, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND CITIZEN PRINTER INFORMATION

Mr/Mrs/Ms: .... Initials: .... Surname: ....

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....

.... Postcode: ....

Tel (Home): .... Tel (Work): ....

Company Name (if applicable): ....

Which computer(s), if any, do you own? ....

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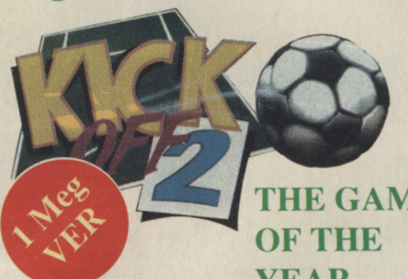

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